AN EXPLORATION OF THE PERSPECTIVES OF NEUROPSYCHOLOGISTS WORKING WITH CLIENTS FROM ETHNICALLY, CULTURALLY AND LINGUISTICALLY DIVERSE BACKGROUNDS

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ABSTRACT

The ethnic minority population of the UK is growing rapidly. Research has shown that factors such as, culture, language and ethnicity can influence cognitive functioning and performance on neuropsychological tests. Most neuropsychological assessment measures have been standardised on individuals from Euro-American, English-speaking backgrounds and have therefore little relevance to people from diverse backgrounds. This can place neuropsychologists in a difficult dilemma, who are required to conduct an adequate assessment and interpretation of a client's cognitive function but are presented with unique challenges when working with diverse populations. Little is known about the neuropsychological assessment and practices involving ethnic minority groups in the U.K. Thus, the current study aimed to explore the experiences and practices of clinicians working in cross-cultural and cross-linguistic neuropsychology.

A cross-sectional research design was utilised, and a sample of professionals working in neuropsychology were recruited from various forums through purposive sampling. The study sample was representative of clinical neuropsychologists in the U.K based on the BPS Division of Neuropsychology (DoN) membership. Respondents (N= 78) completed a self-report questionnaire consisting of open (quantitative) and closed-ended (qualitative) questions via an online survey platform.

Frequencies were reported for quantitative data whereas qualitative data were subjected to two waves of analysis. Content analysis was firstly used to tabulate and summarize open-ended responses. Recurring themes from this data were then abstracted using thematic analysis.

Several themes emerged from the data including: a lack of training, challenges of working across culture, awareness of culture, neuropsychological tests and norms, clinical interview and interpreters. Overall, the quantitative data supported findings from the qualitative data. The findings were analysed in order to draw overall conclusions relating to neuropsychologists' assessment practices,

challenges faced by them and the wider profession and recommendations for improving cross-cultural and cross-linguistic neuropsychology. It is hoped that the results from this study stimulate research in the area of culture and language in neuropsychological practice as well as improve cultural competence at an individual and organisational level.

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1. INTRODUCTION

1.1. Overview

This chapter will begin with a discussion of the definitions and terms related to cross-cultural and cross-linguistic neuropsychology. Following this, an overview of the area of cross-cultural neuropsychology and the assessment of individuals from ethnically, linguistically and culturally diverse backgrounds is provided. A summary of the factors that can contribute and influence performance on neuropsychological tests is then presented. This will follow with challenges within cross-cultural and cross-linguistic neuropsychology along with potential solutions. A summary of competencies that are required by clinicians working in this field is then outlined. Lastly, a review of the relevant literature base is presented along with a rationale for the study and its research questions.

1.2. Definitions and Terms

Key terminology is discussed in this section and section 1.3. I use the first person throughout, with the purpose of wanting to connect to the readers in a personable way (Gergen, 2007) and to demonstrate transparency.

1.2.1. Race

The term ‘race’ is based on “genetic trait differentiation between groups” (Gasquoine, 1999, p.377). It is based on the notion that humans can be divided into separate categories based on biological traits such as skin colour, blood group and hair texture (d’Ardenne & Mahatani, 1999). However, ‘race’ is not affiliated with a scientific meaning and has no biological validity. Some have argued that ‘race’ is a social construct as it is shaped by social, political, and historical influences which differs according to time and place, and is therefore, open to varying interpretations. (Omi & Winant, 2015; Bhopal, 2004). Historically, the concept of ‘race’ is tied up with colonisation and slavery. Although there is no biological meaning associated with the concept of ‘race’, racial discourses exist in UK society and within neuropsychology (see section 1.6.1).

1.2.2. Ethnicity

Ethnicity is a multi-faceted concept which refers to the group that people belong to based on their geographical and ancestral roots as well as their cultural traditions and languages (Bhopal, 2004). It has been suggested that in contrast to race, ethnicity is somewhat shaped through choice and a sense of belonging (Bhopal, 2004). However, ethnicity is seen as a vague and fluid concept as features that define ethnicity are not easy to measure (Bhopal, 2004). Some of the other difficulties of defining ethnicity are linked to the pace of social change, and scientific practice (Bhopal, 2004) (See section 1.6.1 for further discussion on measuring ethnicity and race).

Furthermore, the heterogeneity within ethnic groups, such as White and South Asian groups, is huge. The use of broad categories can limit understanding of the influence of ethnicity on cognitive performance and affect the provision of culturally appropriate neuropsychological services. Thus, the terminology for ethnic minority populations needs to be more accurate and clearly defined within research (Bhopal, 2004)

Race and ethnicity are both terms that are used interchangeably throughout literature but as highlighted above, have separate meanings.

1.2.3. Culture

Culture is defined as “the integrated pattern of human behaviours that include beliefs, customs, values, traditions and artefacts, which is shared by members of society” (Bates & Plog, 1990, p.7). It is recognised as the way of living by a group of people which is passed down through learning from one generation to another and can be influenced by socio-political histories and contexts (Ardila & Rosselli, 2003; Gasquoine, 2009). Thus, people from different cultures will have different experiences of neuropsychological assessment and services.

Fernando (2012) describes culture as evolving and dynamic and views it as a “flexible system of values and world views that people live by” (p. 113). Krause and Miller (1995) support this flexible definition of culture but suggest that people

have some choice regarding which cultural beliefs they may or may not want to adopt. It is important to note that huge cultural diversity exists within cultural groups, including differences in traditions, practices, and beliefs (Fernández & Abe, 2017).

Contrary to popular belief, cultural influences on behaviour are not solely determined from an individual's race or ethnic background (Gasquoine, 2009).

1.2.4. Language

Language is a "system of arbitrary vocal symbols, which permit all people in a given culture, or other people who have learned the system of that culture to communicate or to interact" (Finocchiaro, 1964, p.8). Different languages vary in phonology (system of sounds), grammar (system and structure of a language), lexicon (vocabulary of a particular language) and reading system (recognising and understanding strings of words) (Ardila, 2020). The use of language strongly corresponds with an individual's level of education and varies according to their cultural background (Ardila, 2020). In a similar way to culture, there is enormous linguistic diversity within specific linguistic groups (Rivera-Mindt et al. 2010).

Bilingualism and multilingualism are important concepts in cross-linguistic neuropsychology. Bilingualism refers to the "knowledge and use of two languages whereas multilingualism refers to the knowledge and use of three or more languages" (Bhatia & Ritchie, 2014, p.21). Language proficiency refers to the ability of an individual to perform (reading, writing, listening, or speaking) in a particular language.

1.2.5. Black and Minority Ethnic and English as an Additional Language

Black and Minority Ethnic (BME) is a method of categorising individuals on the basis of ethnicity. The term 'BME' describes all ethnic groups except the White British group.[1] Ethnic minorities also include White minority groups such as Irish travellers or Jewish people.

[1] The White British ethnic group consists of English, Welsh, Scottish and Northern Irish.

‘EAL’ refers to English as an Additional Language and comprises of individuals whose main language is not English. This includes White British people who do not have English as a primary language but are primary speakers of languages such as Welsh Cymraeg, Scots or Scottish Gaelic. Such individuals may be exposed to UK culture, but be disadvantaged linguistically on tests in English by having to operate in their second or additional language.

I will be referring to people from BME backgrounds (who may be at a disadvantage due to cultural differences or discriminatory practices) and those who have English as an additional language (who may be at a linguistic disadvantage) throughout this study.

1.2.6. Intersectionality

Intersectionality is a theoretical framework that arose from feminist and critical race studies. It highlights that single category dimensions that try to explain oppression and disadvantage solely in relation to group members who are otherwise privileged, systematically overlook people that belong to multiple disadvantaged groups (Crenshaw, 1993; King, 1988). The approach stresses the importance of attending to multiple social categories such as, race, ethnicity, gender, and sexuality which can be experienced simultaneously and influence outcomes (Cole, 2009).

In relation to the current study, constructs such as language, culture, ethnicity, class, and race, intersect and work together to uniquely inform one’s experiences and neuropsychological test outcomes. There is of course a continuum, and degrees of difference and overlap here. For instance, primary speakers of French, Spanish and German will more likely be exposed to UK culture and thus, culturally similar to people from the UK, but there will be minor cultural differences that may matter for test performance, and certainly linguistic differences. The same might be said for Polish, Hungarian or Russian people, for example, who are likely to be culturally 'European' but from a different Caucasus or Eastern European background.

In contrast, people originating from countries, such as, Ghana or India may have English as a primary language, or have been educated primarily in English, and

so while not at a linguistic disadvantage will be subject to cross-cultural issues in test content. It is important to consider an individual's multiple identities to fully understand their experiences and cognitive ability, and I request that the reader takes into consideration these multiple influences.

1.3. Introduction To Cross-Cultural Neuropsychology

Neuropsychology has been defined as the "study of the brain organisation of cognitive processes under normal and abnormal conditions" (Arango-Lasprilla, Stevens, Paredes, Ardila & Rivera, 2016, p.1), while clinical neuropsychology is an applied branch of that psychological science focusing on brain-behaviour relationships (Barth et al., 2003). Clinical neuropsychologists have an important role in the assessment and treatment of individuals with brain injury (Taylor, Livingston & Kreutzer, 2007).

Clinical neuropsychology is a fairly new specialty compared to related disciplines, yet there has been significant growth and progression within the discipline (Puente, Perez-Garcia, Lopez, Hidalgo-Ruzzante & Fasfous, 2013). Despite its remarkable influence, the profession has paid little attention to important factors such as language and culture; and has overlooked the clinical needs of Black and Minority Ethnic (BME) clients and those with English as an additional language (EAL) (Puente et al., 2013; Rivera-Mindt, Byrd, Saez & Manly, 2010). This is disappointing as the demographic patterns in the developed nations are changing rapidly, with the population becoming more culturally, linguistically, racially and ethnically diverse (Wong, 2006). Given the societal demands, neuropsychologists (including in the U.K) are more likely to be expected to assess and evaluate clients whose culture, language, racial and ethnic background is different from their own (Wong, 2006). The terms, clinicians and neuropsychologists, will be used interchangeably throughout this thesis. Within this context, clinicians refer to professionals working within neuropsychology.

The area of cross-cultural neuropsychology has aimed to explore the differences in test performance and neuropsychological outcomes of clients from diverse backgrounds (Puente et al., 2013). It has been broadly defined as the "assessment of brain function using psychometric methods to inform about the

role of culture in the psychological assessment of minority group members" (Puente et al., 2013, p. 225). The same definition applies to the area of cross-linguistic neuropsychology, except with a focus on the role of language in assessment. The use of normative data is a key aspect of neuropsychological assessment. This is referred to as the "average performances of groups divided by age, sex, education, ethnicity, etc." (Merritt et al., 2017, p.169).

1.4. Theories Relating To Differences Found In Neuropsychological Performance Among BME Groups

Numerous studies have reported differences in cognitive performance across different cultures and countries (Wajman, Bertolucci, Mansur & Gauthier, 2015). The findings have confirmed that ethnic minority groups perform poorly on neuropsychological tasks in comparison to their White, Euro-American counterparts (Agranovich & Puente, 2007; Razani, Burciaga, Madore & Wong, 2007). For example, in the United States, African American, Hispanic American and Native American group members have consistently shown lower cognitive test scores than White Americans (Gasquoine, 1999). Similar results have been observed in studies with New Zealanders of Maori descent who have demonstrated poorer performance on cognitive measures than New Zealanders of European descent (Ogden & McFarlane-Nathan, 1997). These differences have been detected on both, verbal and nonverbal tests (Hayden et al., 2014). Discrepancies in test scores exist despite matching groups on factors such as education and socioeconomic status (Olson & Jacobson, 2014; Artiola I Fortuny, Heaton & Hermosillo, 1998; Jacobs et al., 1997)

The findings of these studies lead to the all-important question of: what factors account for the discrepancies in cognitive scores? Firstly, biological differences and genetic variation among diverse groups of people has been proposed as a potential hypothesis to explain the differences found in test scores (Brickman, Cabo & Manly, 2006). A second hypothesis is that certain neuropsychological tests assess specific cognitive patterns in different groups of people (Brickman et al, 2006; Dudley, Wilson & Barker-Collo, 2014). Thirdly, it has been suggested that factors such as, race and ethnicity do not cause variability in test

performance but instead, interact with other important factors that influence brain functioning and impact performance (Brickman et al, 2006; Wajman et al., 2015). Lastly, the clinicians' cultural and linguistic competence and their understanding of diverse client groups can affect the group's performance and outcome on tests (Brickman et al, 2006).

1.5. Problems With Using Standardised Assessment Measures With Individuals From BME and EAL Groups

Literature is beginning to highlight that differences between groups can be attributed to a range of factors, including, educational differences, cultural factors, acculturation, language, race, and ethnicity. This presents unique challenges in assessment as the majority of neuropsychological instruments have been developed and standardized mainly on English-speaking individuals from European-American backgrounds (Wong & Fujii, 2005). Cultural concepts, test items, interpretations and research are therefore, likely to reflect the dominant culture and language. These measures are unsuitable for individuals from BME and EAL groups who do not fit the standardization sample for various reasons. Firstly, a test that is relevant and suitable in one culture may have a distinct meaning in another culture (Ardila, 2007). Secondly, specific cognitive constructs or test procedures cannot be regarded as universal values and shared by every culture or language (Ardila, 2007). For example, many neuropsychological assessments emphasise the importance of speed, accuracy and motivation in problem solving which can be unfamiliar to certain groups of people. Thus, it seems illogical to ask an individual to identify or define aspects in assessment that they have not been exposed to (Jones-Chesters, 2007). Thirdly, administering neuropsychological tests or norms derived from one culture to another can lead to false-positives and misdiagnoses (Bakos et al., 2010; Daugherty et al., 2017; Puente et al., 2013). Luria (1976) observed that such tests often led to experimental failures and were inappropriate to use for people from other cultural backgrounds (Rivera-Mindt et al., 2008). Norman and colleagues (2000) found that the use of original standardized norms on the California Verbal Learning test led to 46% of healthy African Americans being mistakenly classified as neuropsychologically impaired. Test validity is further

reduced when a neuropsychological test is delivered in a language that is different to the individual's primary language.

This can place clinicians in a difficult dilemma. Clinicians are required to determine whether differences arising from neuropsychological tests that are administered to BME and/or EAL individuals are truly measuring the relationship between brain and behaviour or reflecting the powerful effect of other factors such as language, culture, education etc. There is also, an absence of appropriate norms and tests for individuals from cultural and linguistic minorities which can impede a clinician's ability to conduct an adequate assessment and interpretation of a client's abilities. This highlights one of the greatest challenges currently faced by clinicians in neuropsychology: the lack of suitable norms and tests for individuals from BME and EAL groups. Possible solutions to this issue will be highlighted later in this chapter.

1.6. Theoretical Issues

An analysis of some of the existing literature of the factors that can influence brain functioning and test performance is presented below.

1.6.1. Ethnicity And Race

Ethnicity and race are considered vital factors in neuropsychological assessment and evaluation; however, the area is marked with division (Olson & Jacobson, 2014). Much has been written about the subject of group differences in intelligence, particularly in relation to race. The issue of race and intelligence has a long and complicated history. In the early twentieth century, a deficit in the IQ scores of black people were found; with African American children scoring 15 to 16 points lower than White American children on intelligence tests (Gasquoine, 2009). Arthur Jensen, (1969) an American psychologist, caused huge controversy by stating that intelligence had a high heritability and that genetic factors were mostly responsible for the Black-White IQ gap (Rushton, 1998). He claimed that the differences in IQ scores were too large to be justified by deprivation of black people. In 1994, Hernstein and Murray extended Jensen's ideas in their book, The Bell Curve, where it was argued that intelligence has a high component of heritability and that groups in society with higher income are

genetically superior in intelligence (Gomberg, 1975). In other words, socioeconomic successes in society, i.e. greater income, higher educational level, are largely due to genetic differences in IQ and those that are cognitively disadvantaged, mainly African American groups, are confined to the bottom divisions of society (Devlin, Fienberg, Resnick & Roeder, 1997). Hernstein and Murray (1994) contented that as IQ is genetically inherited, it is impervious to educational and environmental interventions and that laws that aim to improve social inequalities are of little use (Devlin et al., 1997). Despite having a huge influence in the area of intellectual functioning, Hernstein and Murray and Jensen were heavily reprimanded. Critics stated that the researchers did not explain why differences in IQ scores were found between black and white individuals and the potential influence of evolutionary processes (Andrade & Campo Redondo, 2019). Others insisted that the intelligence tests that were used to assess white and black groups were culturally biased against minority populations (Hamblin, 1981). Richard Lynn, a British psychologist conducted a study in 2006 and concluded that Sub-Saharan Africans have an average IQ score of less than 70 (compared to a mean IQ of 100 in Britain). Lynn and Vanhanen (2006) stressed that the divide between rich and poor countries is largely due to discrepancies in national intelligence and that the low IQ scores account for the reduced levels of economic development in sub-Saharan countries. Lynn was criticised for the methodological flaws in his study as it was argued that he consistently overlooked Africans with high IQ scores (Thomas, 2010). The IQ and race controversy continues to this day, however, what is apparent is that, as research has progressed, the notion that race and ethnicity cause discrepancies in test performance has been replaced by the proposal that race and ethnicity interact with other factors to influence cognitive performance (Brickman et al, 2006).

Brickman et al. (2006) reported that being aware of a client's racial or ethnic background can provide an insight into how these factors have contributed towards their life opportunities and experiences, such as educational attainment, occupational experiences and socioeconomic status. This is likely to provide a fuller picture of a client's cultural context and their cognitive function (Olson & Jacobson, 2014).

However, there is a lack of clarity and understanding on the effects of race and ethnicity on psychological performance. Firstly, there is enormous variation within groups with the same ethnic label, thus, ethnicity is not considered to be a valid factor of cultural experience (Olson & Jacobson, 2014). For example, an individual who describes their ethnicity as Indian but lives in London is likely to have dissimilar experiences from an individual who identifies as Indian but lives in Scotland (Elbulok-Charcape, Rabin, Spadaccini & Barr, 2014). Secondly, there are difficulties in categorising and measuring race, thus, individuals from mixed racial or ethnic heritage may not easily fit into a category (Wong, et al., 2000). There are also issues in understanding and operationalising race in neuropsychological testing, including the definition of race which is often affiliated with socio-political principles as opposed to a scientific meaning (Gasquoine, 2009). Lastly, ethnic minority groups in the U.K. are more likely to be affected by social inequalities, including, patterns of immigration, poverty, differing family and gender roles, bias and discrimination etc. These factors can undoubtedly affect one's physical and mental health and, in turn, influence neuropsychological assessment (Scott, 2002; Daugherty, Puente, Fasfous, Hidalgo-Ruzzante & Perez-Garcia, 2017; Chan, Pillay & Swing, 2013; Magana & Hovey 2003).

Such issues can create obstacles for the clinician whose goal is to provide adequate neuropsychological services to individuals whose ethnic background or race may be different from their own.

1.6.2. Culture

It is important to examine how culture can affect the assessment of brain-behaviour relationships (Wong et al., 2000). Ardila (1995) suggested that "cultures dictate what is and what is not relevant situationally. What is relevant and worth learning for an Eskimo does not necessarily coincide with what is relevant and worth learning for an inhabitant of New York, Mogasdishu, Manus or Bogota" (p. 144). He highlighted that varying cultural contexts generate distinct patterns of abilities and cognitive skills (Ardila, 1995). Therefore, the measurement of cognitive skills in neuropsychological testing often reflect the individual's culture-specific values and learned abilities that are compatible with their contextual experiences (Ardila, 2007). This can produce problems for the

majority of neuropsychological tests that have been developed and normed on a group of people from a dominant culture with shared experiences and values (Ferguson et al., 2001).

The client's cultural expectations and familiarity with the testing process can also be an important factor in assessment (Ferguson et al., 2001). Greenfield (1997) proposed that clients from diverse cultural backgrounds may differ in their values, modes of knowing and communication styles than the target population which can interfere with the testing process and overall outcome. These factors can influence people's test scores and explain why some BME clients are likely to score lower on cognitive tests. Kathuria and Serpell (1998) found that Zambian children outperformed British children on familiar tasks but exhibited poorer performance than British children on a task that involved unfamiliar material. Fasfous and colleagues (2013) showed that Spaniards obtained a higher IQ than Moroccans on an intelligence task and attributed this difference to familiarity; suggesting that individuals who are less accustomed with test procedures may use more sophisticated cognitive functions in assessments.

In addition, acculturation has shown to be a significant predictor of performance on various neuropsychological tests (Baird, Ford & Podell, 2007). Berry and Sam (1997) described acculturation as the process by which "individuals who develop in one cultural context, manage to adapt to new contexts" (p.293)

Migrants living in multicultural societies are less likely to integrate into the mainstream culture and are more inclined to adhere to the norms of their minority culture (Jones-Chesters, 2007; Bisin & Verdier, 2000). It has been suggested that individuals that are more assimilated with the majority culture tend to perform better on neuropsychological measures that have been developed within the main culture (Ponton & Ardila, 1999). It is possible that greater assimilation increases linguistic competence or exposure to certain cognitive patterns that are required to perform well on cognitive tests (Baird, Ford & Podell, 2007). For instance, a study found that African Americans who were less acculturated performed more poorly on a range of neuropsychological tasks than more acculturated African Americans, even when the effects of education, gender and age were accounted for (Baird, Ford & Podell, 2007; Manly et al., 1998). These

findings suggest that it is important to consider the individual's level of acculturation in order to detect cultural influences, even for those whom acculturation is assumed as a result of their length of residence in the country (Baird, Ford & Podell, 2007).

Acculturation can be measured by assessments of knowledge on beliefs, food and practices associated with a specific ethnic or cultural group (Baird, Ford & Podell, 2007). Unfortunately, a limited number of studies have explored the impact of acculturation on neuropsychological test performance in diverse groups of people, which highlights a need for more research in this area.

1.6.3. Language

Contemporary humans speak over 3500 different languages (Swadesh, 1966). In the U.K, 4.2 million residents have reported a main language other than English, despite English being the official language of the country (2011 Census Office for National Statistics). The majority of neuropsychological assessments have been produced in major European languages, such as English, French, Spanish and German (Olson & Jacobson, 2014). However, tests and norms relating to other languages spoken in the United Kingdom (UK), such as Urdu, Arabic or Cantonese are currently limited (Judd, 2011). This presents challenges to the provision of culturally and linguistically responsive neuropsychological services to clients from diverse linguistic backgrounds (Rivera-Mindt et al., 2010). The diversity of languages within different linguistic groups adds further complexity to the current issue (Rivera-Mindt et al., 2010). Challenges and solutions pertaining to linguistic issues in neuropsychological assessment are presented below.

1.6.3.1. Linguistic proficiency: The proficiency in a language is an important and necessary element of neuropsychological assessment (Elbulok-Charcape et al., 2014). An assessment should incorporate whether an individual has the required levels of language skills that is needed for a test (Woodcock, 1990). An inaccurate evaluation of a client's linguistic capacity can have a negative impact on test validity which can significantly and artificially reduce cognitive scores (Elbulok-Charcape et al., 2014; Judd, et al., 2009; Vilar-Lopez & Puente, 2010). In the initial stages, clinicians should ascertain if they are able to communicate

appropriately and effectively with a client, i.e. outline the nature of assessment, administer test instructions and understand the client's responses (Jones-Chesters, 2007). The following stage requires a clinician to determine whether the client's primary language is different from their own (Olson & Jacobson, 2014). If this is the case, the examiner and examinee may not be able to communicate effectively which can potentially invalidate the assessment (Olson & Jacobson, 2014). The better option is for the client to be assessed in their preferred or primary language but in truth, many clinicians evaluate clients from cultures and languages in which they have little knowledge about. If this situation arises, it would be beneficial for the clinician to seek out a referral or consultation with a colleague who has greater expertise in the client's preferred language (Brickman et al, 2006).

1.6.3.2. Multi-bilingualism: Research findings demonstrate that multilinguals have delayed reactions to comprehension and word production despite performing tasks in their first and dominant language (Ivanova & Costa, 2008). This suggests that bilinguals and monolinguals experience a linguistic disadvantage on neuropsychological tasks and are at risk of cross-language interference, particularly when tasks are not administered in the client's dominant language (Ivanova & Costa, 2008). In addition, complications can arise when the client or clinician have varying levels of fluency or limited proficiency in the target language (Rivera-Mindt et al. 2010; Wong et al., 2000). In literature, there has been a lack of understanding and clarity on the valid evaluation of linguistic minorities (Rivera-Mindt et al., 2008). Clinicians are obligated to evaluate the extent and nature of a client's bilingualism or multilingualism, including their ability to read, write and understand the required language (Paredes & Arango-Lasprilla, 2017; Marian et al, 2007; Paradis, 1987; Judd, 2011). However, the challenges highlighted above, signify that the measurement of linguistic proficiency in individuals speaking more than one language is not a straightforward task.

1.6.3.3. Interpreters: The use of interpreters has been recommended as a potential solution to overcome linguistic challenges in assessment. Interpreters can facilitate communication between the client and clinician and assist the

clinician in understanding relevant cultural and linguistic issues that are relevant for assessment (Romero et al., 2009; Wong & Fujii, 2004). The use of interpreters in neuropsychological assessment and evaluation can raise several issues. Although interpreters are able to communicate in both languages, cultural values and norms may differ, potentially leading to biases in translation (Wong et al., 2000). Ardila et al. (2002) pointed out that a disparity between the client's linguistic abilities and those of the interpreter can lead to inaccuracies in diagnosis, interpretation, and evaluation and affect the overall validity of the assessment. Furthermore, clinicians can have difficulties in assessing the suitability of an interpreter, including their qualifications, level of fluency in the relevant language and accuracy of the translated information (Brickman et al., 2006). Research findings have indicated that the majority of interpreters lack any formal training in neuropsychology and have limited understanding of neuropsychological terms, concepts and strategies (Iverson, 2000; Ardila, Roselli & Puente, 1994). It has also been found that interpreter use can increase disparities in neuropsychological test scores (Casas, 2010). These complications highlight that an evaluation from a bilingual or multilingual neuropsychologist is preferable (Elbulok-Charcape et al., 2014). However, in situations where an interpreter must be used, it is recommended for a clinician to take the necessary steps to adequately prepare and plan the assessment session with the interpreter. It is also advisable for the interpreter to be trained within a neuropsychological context to avoid compromising the validity of assessment (Hernandez-Cardenache et al., 2016; Elbulok-Charcape et al., 2014).

1.6.3.4. Translated tests: Many clinicians use translated versions of tests to assess clients that are not fluent in English. These tests are from mainstream languages that have been translated or adapted into other languages. However, there are some issues with using translated tests. Firstly, there are difficulties in applying neuropsychological test norms that have been derived from one culture to another culture, as the underlying assumptions acquired from these norms can vary from culture to culture (Paredes & Arango-Lasprilla, 2017). Secondly, there are large discrepancies between languages, including words, phrases and expressions which can inhibit a full and accurate translation from one language to the other (Paredes & Arango-Lasprilla, 2017). Consequently, words in one

language may not exist in the second language and likewise, two languages may have very distinct definitions for similar words (Olson & Jacobson, 2014). Thirdly, the translation of individual test items can diverge from standardized procedures thereby affecting the validity of the measure (Olson & Jacobson, 2014). Lastly, it is often the case that individuals who carry out the translation from one test to another are not fully proficient in the required language (Brickman et al., 2006).

The use of statistical methods, such as invariance analysis and new approaches to test adaptation have been slowly introduced to overcome some of the difficulties relating to in-house translations which has led to greater possibilities in developing measures with related construct validity across different languages (Strutt et al., 2016).

1.6.3.5. Culture-free tests: There have been greater attempts to develop 'culture-free' tests to overcome the cultural and language issues prevalent in neuropsychological assessment (Jensen 1980). Cattell (1940) was the first to produce 'culture-free' tests by only involving items that consisted of basic geometric figures and were independent of language (Graham, Naglieri & Weiner, 2013). Some of these tests consisted specifically of "non-verbal" tests which aimed to eliminate language with the assumption that "nonverbal" items would be similar across diverse cultural and linguistic groups (Cattell, 1940; Levav et al., 1998). However, this approach incorrectly assumes that language is the only obstacle in an accurate assessment (Wong et al., 2000). It was noted that certain tasks within non-verbal tests, such as drawing maps or copying figures can be shaped by the individual's culture and that non-verbal symbols may not be similar across different cultures (Ardila, 2007; Wong et al., 2000). This theory was quickly discredited by studies which confirmed that "non-verbal" tests were culturally biased with some researchers finding even larger group differences in non-verbal tests than verbal tests (Anastasi, 1988; Irvine & Berry, 1988; Rosselli & Ardila, 2003; Wong, 2000; Wong et al., 2000). In light of these criticisms, Cattell developed "culture-fair" tests which included more items involving complex patterns and classification tasks, thus averting from verbal questions (Graham, Naglieri & Weiner, 2013). However, other influences such as formal education and schooling can have an impact on this type of test (Ardila,

2006). It is important that results arising from such tests are evaluated carefully and interpreted with caution. Nevertheless, the use of “culture-fair” tests continues to be a popular approach within neuropsychological practice and has been used across different cultures. The challenges associated with the assessment of linguistic minorities indicate that more tests and procedures that are produced and normed in different languages are needed (Wong et al., 2000).

1.6.4. Education

Education has a significant influence on psychological performance and is one of the most examined variables in neuropsychological research (Rosselli & Ardila, 2003). It has been referred to as an aspect of culture that involves both literacy and schooling (Ardila, Ostrosky & Mendoza, 2000). Literacy relates to the ability to read and write. Education is generally measured by the number of years of formal education. Studies have shown that groups of people with higher levels of education and more years of education perform better on intelligence tests (Ostrosky, Ardila & Rosselli,1999; Ardila, Rosselli & Rosas, 1989) and verbal neuropsychological tests (Acevedo et al., 2000; Klenberg, Korkman & Lahti-Nuuttila, 2001; Ardila & Rosselli, 2003). This highlights that different cognitive abilities are acquired throughout formal education (Gasquoine, 1999). There is, however, diversity in schooling and educational experiences, including the format and content of educational curriculums and differing approaches to problem solving strategies. This may explain why some BME groups tend to score lower on neuropsychological tasks, even when the "years of education" is accounted for (Ardila 1995).

Education plays a pivotal role in the acquisition of test-taking skills by promoting values and behaviours that are likely to increase the possibility of success on neuropsychological tests. This phenomenon has been termed as “test-wiseness” (Balchin et al., 2017). Some examples include, compliance with instructions and test procedures and sitting still and focusing for long periods of time (Nell, 2000). It has been suggested that people from diverse ethnic, cultural and linguistic backgrounds are generally not as “test-wise” as their White equivalents (Manly et al., 2002). People from a majority western culture with values such as individual autonomy and independence are more likely to view tests as competitions and

opportunities to display skill as quickly as possible (Niemeier, Burnett & Whitaker, 2003; Olson & Jacobson, 2014).

Research has emphasised the importance of the quality of educational experiences as measured by reading level (Ardila, 1995). This is considered a significant predictor of cognitive ability (Byrd, Sanchez & Manly, 2005). It is important to note that there is variation in the quantity and quality of education across different societies which can influence test performance (Baird, Ford & Podell, 2007). Some examples include, the number of educational opportunities, whether it is a public or private school and the type of area the individual lives in.

There are challenges in measuring education in neuropsychological testing. The number of years in formal education is commonly used in neuropsychological testing but is not considered an adequate measure of the type or quality of educational experience and opportunity across different cultures. The adequate measurement of key factors in assessment, including school achievement, teaching style and overall school performance is a momentous challenge that requires serious deliberation and thought on how to reliably assess and represent education.

This section has highlighted the complex ways in which various factors can impact on psychological functioning, however, much work is yet to be done in examining the effects of these variables on cognitive performance (Jones-Chesters, 2007).

1.7. Barriers To Cross-Cultural And Cross-Linguistic Neuropsychology And Potential Solutions

This section will explore the various obstacles that are faced by both, clinicians and the wider profession. Potential solutions to these issues will be highlighted, which can prepare the clinician to provide adequate services to clients from BME and EAL groups.

1.7.1. The Lack Of Adequate Neuropsychological Instruments

As mentioned above, one of the biggest dilemmas faced by neuropsychologists is to establish whether a given set of results indicates brain pathology or the

complex effects of potential confounds. The majority of existing neuropsychological tests used by clinicians are understood to be applicable to individuals from Euro-American backgrounds and may have less relevance to people from other cultural and linguistic backgrounds (Wong et al., 2000). Thus, there is a huge demand for the development of appropriate neuropsychological tests and norms for people from BME and EAL groups to enable clinicians to assess individuals from these groups more accurately (Nabors, Evans and Strickland; 2000). Below, are several approaches for addressing this issue.

1.7.1.1. Specific group-based norms: In the United States (U.S), research has focused on the development of normative data by presenting demographic adjustments for different populations, including Spanish-speaking (Artiola I Fortuny et al., 1999) and African American groups (Heaton et al., 2004). The use of normative data has allowed clinicians to offer more valid and thorough evaluations of different client groups by improving the diagnostic accuracy of neuropsychological instruments (Ardila, Rosselli & Puente, 1994). Race-specific normative data sets have been produced more recently in the U.S. This has been developed mainly for African Americans to decrease false positive misclassification rates on neuropsychological tests (Gasquoine, 2009). It is important for clinicians to question whether the norms are suitable for the individual and if they are appropriately stratified in ways that represent demographic factors that influence test performance, particularly with regard to age, sex and education (Ardila, Rosselli & Puente, 1994; Brickman et al., 2006). Overall, the use of specific group-based norms can enhance the sensitivity and precision of neuropsychological instruments in the assessment of cognitive functioning (Manly & Echemendia, 2007).

However, others argue that group-based norms disguise the prevailing factors that contribute to performance differences in diverse clients which can possibly lead to careless interpretations about alleged genetic differences amongst groups (Gasquoine, 2009; Manly, 2006). This can result in a failure to understand the underlying clinical needs of clients and prevent them from accessing much needed services and treatment (Elbulok-Charcape et al., 2014). In addition, the cultural, linguistic and educational variation within subgroups indicates that it

would be impractical to generate and operationalize data sets for all existing groups (Olson & Jacobson, 2014; Rabin, Brodale, Elbulok-Charcape & Barr, 2019). The difficulties in defining and operationalizing terms such as ethnicity, race and culture pose further challenges in developing group-based norms (Olson & Jacobson, 2014).

1.7.1.2. Culture-fair approaches: "Culture-fair" or "culture-free" approaches have been widely used in psychological assessment and across different cultures as a result of its declared universal applicability. Such tests have been designed to reduce the influence of culture and language. This approach consists of "non-verbal" tests, "culture-fair" tests, and translated neuropsychological instruments (Jones-Chesters, 2007). If "culture-fair" methods are valid predictors of neuropsychological functioning, then such tests should provide a more accurate measure of a client's abilities and better indication of how they should be performing in the absence of a cognitive impairment (Brickman et al., 2006). However, several issues have been identified with this approach; some of which were discussed in section 1.5. For example, 'culture-fair' approaches are found to be culturally biased as they involve the use of cognitive skills and strategies that are reflective of Western cultures (Anastasi, 1988; Irvine & Berry, 1988; Wong, 2000; Wong et al., 2000; Rosselli & Ardila, 2003). Cole (1999) stated that the theory of a culture-fair test is a misconception as all tests of ability are based on culture.

1.7.1.3. Culture-specific tests: There have been some efforts to develop tests that are 'culture-specific.' Such tests have been designed for a particular cultural or linguistic group (Jones-Chesters, 2007). To date, culture-specific tests have been established in several languages from ethnic minority communities in the U.K, including Sylheti, Urdu, Polish and Bulgarian (Jones-Chesters, 2007). An advantage of this approach is the high ecological validity of the test (Dana, 2000). An individual can be assessed on material that is relevant to them, without having to work through content that may be obscure or unfamiliar (Williams, 1972). However, its culture-specific applicability implies that the tests cannot be used for comparisons across cultures (Dana, 2000). Furthermore, it has been argued that the application of culture-specific tests may be unsuitable for highly acculturated

groups of people as many of these individuals demonstrate significant differences in cultural adaptation to the primary culture compared to less acculturated people (Dana, 2000). Whether it is relevant to develop exclusive tests for different cultures or group-specific norms or to utilise 'culture-fair' approaches are important considerations for future research (Ferraro, 2016).

1.7.2. Underrepresentation Of BME Professionals

Challenges within cross-cultural and cross-linguistic neuropsychology are not just limited to neuropsychological assessment. Studies in the U.S have demonstrated that there is an underrepresentation of neuropsychologists that identify as ethnic minorities (Elbulok-Charcape et al., 2014; Echemendia & Harris, 2004; Hill-Briggs et al., 2004; Rivera-Mindt et al., 2010) This suggests that the knowledge required to support the clinical needs of clients from diverse backgrounds is insufficient *(*Ardila, 1995). Many monolingual English-speaking clinicians are requested to evaluate bilinguals or multilinguals who demonstrate varying levels of proficiency in the English language, however, this can impede an accurate and valid assessment and evaluation (Casas, 2010). Elbulok-Charcape et al. (2014) suggested that socio-economic issues and a lack of exposure to neuropsychology at an early career stage can discourage minority individuals from joining the profession. They pointed out that greater representation of professionals from ethnic minorities can elicit new perspectives to theory and practice which can offer an alternative to the Eurocentric models that are inherent in neuropsychological practice. A diverse pool of neuropsychologists can also be helpful in serving as mentors or supervisors to clinicians and students that are interested in pursuing a career in neuropsychology (Elbulok-Charcape et al., 2014).

Elbulok-Charcape and colleagues (2014) proposed several strategies to enhance diversity within the discipline. This involved, introducing neuropsychology to students at undergraduate level, offering work opportunities with diverse clients, facilitating conferences and workshops on diverse issues and inviting guest speakers as well as providing outreach and ongoing support to clinicians by qualified neuropsychologists acting as mentors (Rabin et al., 2019; Elbulok-Charcape et al., 2014; Rivera-Mindt et al., 2010). The profession must prioritise

the recruitment and training of individuals from diverse backgrounds if it is to progress and become more representative of the minority groups it serves (Echemendia et al.,1997).

1.7.3. A Lack Of Cross-Cultural And Cross-Linguistic Neuropsychological Research

The changing demographics of UK society imply that clinicians must acknowledge several complex factors in the assessment and evaluation of clients from BME and EAL backgrounds, however, many lack in-depth knowledge about the range of assessment measures and the interpretation of tests for this client group. Neuropsychological research relating to the analysis of cultural variables and other pertinent issues in clinical practice is limited. Hence, clinicians need clearer guidelines on how to incorporate cultural and linguistic factors into assessment and evaluation. One way to achieve this is to increase research that examines the effects of different variables on cognitive function and the psychometric integrity of neuropsychological instruments in minority groups (Elbulok-Charcape et al., 2014; Rabin et al., 2019; Rivera-Mindt et al., 2010; Wong, 2006). Another way to enhance cross-cultural neuropsychological research is to expand ethnic minority representation in neuropsychological research. This can enhance evidence-based practice by providing a deeper understanding of how neuropsychological models relate to cultural, ethnic and linguistic minorities (Rivera-Mindt et al., 2010).

The complexities associated with the study of cultural variables and other factors as well as the influences they have on one another, signify that research will be a continuous and ongoing process that will require several years to achieve change within the discipline (Manly & Echemendia, 2007).

1.7.4. Limited Cross-Cultural And Cross-Linguistic Training And Education

Research has highlighted that many clinicians' lack comprehensive training and education on how cultural variables affect neuropsychological assessment, interpretation and evaluation (Brickman et al., 2006). A lack of understanding of cultural and linguistic differences can affect the validity of the neuropsychological evaluation and influence the clinician to make judgment errors, such as, misdiagnosing cognitive impairment or conforming to stereotyping or

overpathologizing diagnoses (Ojeda et al., 2016; Niemeier, Burnett & Whitaker, 2003; Olson & Jacobson, 2014). Social consequences of these errors possibly include being denied vital services and treatment or receiving unrequired services (Niemeier, Burnett & Whitaker, 2003).

Several authors have suggested that training should be integrative: involving a combination of cross-cultural issues, clinical skills training, case discussions and supervision by experienced clinicians in the field (Echemendia et al. 1997; Wong et al., 2000). This can equip clinicians with the necessary skills to manage the effects of different variables on test performance and minimize their impact (Wong et al., 2000). Proctor and Simpson (2016) suggested generating a course model that would increase clinician's cross-cultural competencies, including the development of critical thinking skills to encourage clinicians to consider how the integration of different factors, such as culture and language can affect cognitive functioning.

The provision of cross-cultural training has been linked to cultural competence, with Echemendia et al's (1997) study revealing that a diverse training caseload and postgraduate training were found to be significant predictors of competence to work with people from diverse backgrounds. The participation in training can foster cultural competence by enhancing clinicians' knowledge and appreciation of diversity issues and individual differences in psychological performance (Wong, 2006). The increase in cultural awareness and competence can, therefore, enhance the therapeutic encounter which is crucial for meeting the clinical needs of clients from BME backgrounds (Echemendia et al, 1997). Other studies have shown that the integration of cultural diversity issues in teaching programmes can generate more skilled psychologists and stimulate research on cultural variables (Rabin et al., 2019, Wajman et al., 2015; Rivera-Mindt et al., 2010). Thus, it is vital to establish culturally sensitive and adequate approaches to training and education for clinicians working in neuropsychology services.

Many of the issues highlighted in this section have contributed to the lack of progression and growth within cross-cultural and cross-linguistic

neuropsychology in the U.K. Overcoming some of the challenges will require a holistic and united approach by clinicians and the wider profession.

1.8. Cross-Cultural Competency For The Neuropsychologist

Cross-cultural competency is an essential skill for neuropsychologists. This refers to the process of generating an understanding of a client's unique cultural, educational, ethnic and linguistic context to determine how this may contribute towards their presentation and test outcome (Wong & Fujii, 2004). Due to the lack of attention of cultural and linguistic variables in neuropsychology, the development of cross-cultural competency in the field is underemphasised (Wong et al., 2000). Clinicians must prioritise the adequacy of their cultural and language skills to ensure that clients experience a culturally and linguistically competent evaluation (Wong et al., 2000; Judd et al., 2009). Below, are key considerations that clinicians must observe when working with individuals from BME and EAL groups.

1.8.1. Assessment Skills

The development of sensitive assessment skills is essential to be able to work effectively with minority groups. Gathering relevant background information about a client, including their characteristics and needs should provide the clinician with some indication of the quantity and type of neuropsychological tests that are required (Kapur & Kemp, 2016). A clinician should attempt to make use of the most suitable test and norms according to the individual client and their situation and question whether the tests are culturally and linguistically biased, and norms are representative of the client's target population (Judd et al, 2009). The potential influence of confounds, such as educational factors, level of acculturation and language proficiency on cognitive performance must also be taken into consideration when administering culturally competent assessments (Judd et al, 2009). Having an awareness of the limitations of neuropsychological tests can encourage a clinician to seek better alternatives when faced with obstacles in the assessment, such as referring to a clinician with the required competencies (Wong & Fujii, 2004; Scott, 2002)

1.8.2. Interpretation And Evaluation

In the process of evaluation, clinicians should not interpret test scores in isolation. Fujii et al. (2002) recommended that clinicians should utilise a multimethod approach when interpreting neuropsychological data by integrating information from the client's entire profile, including their background information, behavioural observations, clinical reports and neuropsychological test results. This method can reduce the likelihood of producing inaccurate conclusions and cultural misunderstandings (Fujii et al., 2002). Robbins and colleagues (2016) stated that a proposal for the evaluation should incorporate the following: the client's individual demographics, reasons for referral and the available tests and norms (Rabin et al., 2019).

Clinicians should consider whether test outcomes make neurological sense and how different factors operate and interact with one another to have an overall impact on the individual's presentation and test interpretation (Brandt, 2007; Wajman et al., 2015). This involves a careful review of the potential weaknesses of the tests and norms that are utilised (Rivera-Mindt et al., 2010). Issues relating to test procedures and interpretation and its impact should be elucidated clearly within clinical reports, including any modifications to test administration or the use of specific approaches such as interpreters (Rabin et al., 2019; Wong & Fujii, 2004; Judd et al., 2009). It is also helpful to incorporate the role of culture and language in the recommendations and conclusions.

1.8.3. Cultural Awareness Of The Self And Others

One way to acquire cultural competence is to increase awareness of the self and others (Rivera-Mindt et al., 2010). Developing a recognition of a client's worldviews, cultural identity and life experiences can provide an insight into their sociocultural context and how this contributes towards their neuropsychological findings (Wong & Fujii, 2004; Cantlon & Brannon, 2006). Dudley, Wilson and Barker-Collo (2014) found that most neuropsychologists ignored the identity and cultural backgrounds of Maori participants which left them feeling offended and resentful towards neuropsychologists (Dudley et al., 2014). This illustrates that incorporating cultural factors into clinical practice is important for developing a rapport with the client and promoting a culturally safe experience for them

(Dudley et al., 2014). It can also reduce the likelihood of misinterpreting specific phrases or concepts, cultural meanings, and cognitive issues (Judd, 2011).

The cultural competence process also requires a clinician to consider his or her own cultural values, beliefs and assumptions, including any differences that exist between their own positioning and the client's realities of being a member of a minority group. This is to help discern how different experiences affect people's life chances and contribute towards inequalities in access to neuropsychological services (Anderson et al, 2009; Dudley et al., 2014). The process of working through one's own biases and stereotypes can encourage the clinician to reflect upon potentially inaccurate application of their own beliefs in the evaluation of test performance and promote better clinical judgment towards their client (Olson & Jacobson, 2014; Ferguson et al., 2001)

Overall, cultural competence is a continuous process that requires self-analysis involving the questioning of one's own values and biases and the awareness of others' cultural experiences and worldviews.

1.9. Literature Review

To identify the relevant literature, the following search terms: 'neuropsychology', 'neuropsychologist', 'ethnic', 'culture', 'language', 'cross-cultural neuropsychology', 'cross-linguistic neuropsychology'' were entered into EBSCO, PsychINFO, PsychArticles, Science Direct and Google Scholar. Publications from the British Psychological Society (BPS) were examined. Reference lists and 'cited by' tools were also examined to gather relevant literature. Searching yielded no results relating to neuropsychology, culture and/or language in the United Kingdom (UK). Therefore, relevant research, primarily conducted in the United States (US) was included. The literature search outcome be found in Appendix A.

1.9.1. Key Studies

Three major studies were retrieved from the literature search. All three studies explored the perspectives of neuropsychologists on the issues and challenges within cross-cultural neuropsychology. As presented below, the first two studies were conducted in the U.S. and the latter study was conducted in Latin America.

1.9.1.1. A National Survey of Neuropsychologists' Training and Practices With Hispanics (1997): Echemendia and colleagues (1997) were one of the first to explore the practices of U.S. neuropsychologists serving the Hispanic population, which is the largest racial and ethnic minority group in the U.S. (Colby & Ortman, 2015). Postal surveys, which covered topics such as training, competence and current practices were completed by 911 respondents who were all members or fellows of the society for Clinical Neuropsychology (Division 40 of American Psychological Association) and the National Academy of Neuropsychology (NAN). The sample was considered representative of U.S. neuropsychologists based on previous neuropsychology surveys (Echemendia et al, 1997).

Caseload involving ethnic minority groups: The study found that 32% of respondents reported little or no experience serving Hispanic populations.

Competence: In total, 82% of the sample rated their ability to treat Hispanic populations as "somewhat competent" or "not at all competent." It was suggested that as the level of self-rated competence increases, the number of Hispanic individuals who are treated also increases (Echemendia et al, 1997). The majority of respondents who reported as having significant experience in working with Hispanic clients were non-Hispanics who perceived their ability to communicate in Spanish as "less than adequate." The use of interpreters was endorsed as a popular approach to perform evaluations on Hispanic clients, however the majority of interpreters (80%) had not completed any neuropsychological training (Echemendia et al, 1997). Interestingly, the most important predictor of self-rated competence was based on training (Echemendia et al, 1997).

Training: The survey data revealed that the majority of respondents (80%) reported that their training ranged from 'less than adequate to 'totally inadequate.' In fact, 90% of respondents reported that their graduate training programmes did not incorporate a module focusing on cultural issues in neuropsychological practice. This implies that neuropsychology lags behind other regions of psychology in the inclusion of cultural factors in teaching content (Allison, Crawford, Echemendia, Robinson, & Knepp, 1994; Bernal & Castro, 1994).

Limitations: The study was based on the self-report of respondents which calls into question, the validity of respondents' answers. Moreover, single-item

measures were used in the study, which tends to have poorer psychometric properties than multiple-item measures (Fisher et al., 2015).

Conclusions: Echemendia et al. (1997) concluded that U.S. neuropsychologists are inadequately prepared to work with Hispanic individuals and need further training in the provision of services to this client group. They proposed that cultural factors should be incorporated into the curriculum of neuropsychology teaching programmes and training workshops (Echemendia et al, 1997).

1.9.1.2. A survey of clinical neuropsychologists in the United States and Canada (2014): A national survey was carried out by Elbulok-Charcape and colleagues (2014) on the cross-cultural assessment practices of U.S. clinical neuropsychologists and their perspectives on the challenges of assessing individuals from diverse backgrounds. Data was gathered as part of a comprehensive survey on neuropsychological assessment practices administered in 2005 (Rabin, Barr & Burton, 2005). Questionnaires were mailed to 2178 people who were randomly selected doctorate-level members from the International Neuropsychology Society (INS) or the NAN and lived in the United States or Canada (Elbulok-Charcape et al., 2014). In total, 512 members were suitable for data analysis. The survey comprised of 73 items, ten of which specifically linked to cultural competence and neuropsychologists' assessment of diverse populations, which will be explored below. Survey items were developed following a review of the literature on cross cultural neuropsychology.

Personal and Professional Demographics: The survey found that the average respondent was close to 50 years of age and had worked in neuropsychological practice for approximately, 15 years. Less than 10% of neuropsychologists identified as non-White and on average, one-third of their professional time was spent with non-White individuals, primarily Black or African American and Hispanic individuals (Elbulok-Charcape et al., 2014). The authors highlighted barriers that can discourage minority individuals from joining the profession in section 1.7.

Training: More than a quarter of respondents reported having received no training in cross-cultural neuropsychological assessment and practice (Elbulok-Charcape et al., 2014). For the majority of those who did complete training, did so through

graduate or postdoctoral level. Others completed training through continuing education and self-education. This suggests that cross-cultural training methods are insufficient (Elbulok-Charcape et al., 2014). It was recommended that the profession should prioritise the integration of diversity issues in neuropsychological practice, including assessment, research, treatment and consultation (Elbulok-Charcape et al., 2014; Rabin et al., 2019). Rigorous training programs, exams and coursework focusing on culture were highlighted as potential solutions (Elbulok-Charcape et al., 2014).

Linguistic ability: A minority of respondents (15%) confirmed conducting neuropsychological tests in languages other than English (Elbulok-Charcape et al., 2014), with the most common language being Spanish. Of those who administered non-English assessments, almost a quarter (24%) of respondents rated themselves as having full linguistic proficiency while 34% reported limited working proficiency (Elbulok-Charcape et al., 2014; Rabin et al., 2019). This implies that although some neuropsychologists provide services in a language other than English, not all are sufficiently trained in the target language (Elbulok-Charcape et al., 2014).

Respondents acknowledged that services that meet adequate standards of linguistic proficiency are not always feasible (Rabin et al., 2019). Elbulok-Charcape et al. (2014) reported that the profession should standardize criteria for linguistic competence.

Typical approaches to assessing clients with limited English proficiency: According to neuropsychologists, the most common approach to assessing clients with limited English proficiency was seeking a referral to a clinician fluent in the client's language (69%). Such referrals, however, may be difficult to seek given the lack of bilingual and multilingual neuropsychologists in the profession (Elbulok-Charcape et al., 2014).

The next most popular approach involved the use of an interpreter (41%). However, it was acknowledged that it can often be difficult to recruit interpreters who fit the necessary requirements which can affect the overall validity of the assessment (Hernandez-Cardenache et al, 2016; Elbulok-Charcape et al., 2014).

Approximately one-quarter of neuropsychologists reported administering tests that are deemed culturally unbiased when assessing clients who have limited facility in the English language (Elbulok-Charcape et al., 2014). Other approaches included the use of bilingual clinicians and translated versions of tests. Elbulok-Charcape et al. (2014) pointed out that translated assessments are generally not comparable to English counterparts as they can lack the sophistication necessary to portray provincial traits, such as phrases and concepts in the chosen language. Overall, there is a lack of adequate neuropsychological tests and norms in numerous languages which signifies that further research is required in this area.

Special approaches in test interpretation: A significant proportion of neuropsychologists reported the use of special approaches to interpret test scores of ethnic minority individuals (Elbulok-Charcape et al., 2014). The most common approach involved utilising different norms based on a normative group that most strongly corresponded to the client's ethnicity, race, or culture (Elbulok-Charcape et al., 2014). Other respondents revealed modifying test scores for discrepancies in years of education. Less than 10% of the sample reported using clinical judgment or the subjective clinical interpretation of data (Elbulok-Charcape et al., 2014; Rabin et al., 2019).

Challenges associated with assessment of ethnic minorities: Neuropsychologists strongly subscribed to a lack of appropriate norms as the most significant challenge for neuropsychological assessment of ethnic minority groups (Elbulok-Charcape et al., 2014). This was followed by a lack of appropriate tests (42.9%) and difficulties in seeking colleagues to consult (35.5%). Respondents also reported other challenges including, a lack of ecological validity of assessments and the heterogeneity of members within ethnic and racial designations leading to difficulties in applying normative data (Elbulok-Charcape et al., 2014).

Limitations: It is important to note that respondents had not been selected from a truly random sample which may represent respondents who are highly committed to the profession and have better awareness of the challenges of assessing diverse populations (Elbulok-Charcape et al., 2014). Furthermore, the use of close-ended questions in the survey may have limited people's responses by

restricting a deeper understanding of respondents' perspectives on cross-cultural issues within the field.

Conclusion: The study highlighted the importance of conducting research on the reliability, construct validity and diagnostic validity of neuropsychological assessments across diverse populations. Suggestions for increasing diversity in the profession were outlined in section 1.6.

1.9.1.3. Profession of neuropsychology in Latin America (2016): Arango-Lasprilla, Stevens and Ardila's (2016) study was the first to examine and report on the practice of neuropsychologists working in Latin America. The sample consisted of respondents primarily from Colombia, Brazil and Mexico working in neuropsychology (Arango-Lasprilla et al., 2016). In total, 808 respondents completed an online survey, which covered several areas which will be examined below.

Training: A high number of respondents reported having completed neuropsychology training during their post-graduate studies. Many respondents (41.9%) described this training and the quality of clinical supervision that was received as "very good." The most frequently identified challenges to the development of neuropsychology in Latin America included, a lack of academic training programs (46.9%) and a lack of clinical training opportunities (45.4%).

Assessment and evaluation: The most frequently used assessments reported by respondents were the Stroop Test, MMSE and the Clock Drawing Test. Less than half of the sample (48.1%) reported the use of personalised and flexible batteries to conduct assessments (Arango-Lasprilla et al., 2016). In relation to scoring procedures, 40% of respondents reported the use of normative data from other countries or tests that were inadequately translated or not culturally adapted (Arango-Lasprilla et al., 2016). The authors highlighted that such approaches can lead to diagnostic errors and inappropriate treatment.

Challenges within the profession: The lack of normative data was identified as the most common issue relating to neuropsychological instruments, leading the authors to propose that this signifies a huge obstacle for the profession. Other challenges related to concerns that neuropsychological measures were not

adequately tailored to the respondents' culture and that there was an educational bias in cognitive tests (Arango-Lasprilla et al., 2016).

Limitations: An issue affecting the generalizability of results was that some respondents did not proceed with all the survey items and dropouts may jeopardize the validity of the findings. Also, the study was administered using an online survey platform which is likely to have attracted respondents with access to the internet and a willingness to complete the survey.

Conclusion: The authors concluded that the profession needs to address pertinent issues in order to progress, such as, increasing clinical training, developing culturally-relevant neuropsychological tests and examining the validity of current neuropsychological measures (Arango-Lasprilla et al., 2016).

1.10. Rationale And Research Questions

The reviews highlight that despite an increasing acceptance and understanding of the importance of cultural variables in neuropsychology, little is known about neuropsychologists' cross-cultural and cross-linguistic practices in the U.K. Most of the research that has been conducted in this area is confined to the US. To the authors' knowledge, no studies have explored this topic in the U.K.

From 2001 to 2011, the UK saw a significant increase in ethnic minority groups and a decline in the White ethnic group (Office for National Statistics, 2018). This trend is likely to continue over the next 20 years. Furthermore, there are growing pressures on the UK healthcare system with greater demands for better quality of care and treatment, particularly for older people and those with complex conditions, including neurological disease. The rapid growth of ethnic minority and EAL populations and increased demands on healthcare professionals indicate that neuropsychologists will be frequently called upon to provide services to people from diverse backgrounds but are presented with unique challenges when working with such groups.

Although the reviews provided a useful insight into the cross-cultural practices of neuropsychologists, the question that still remains is: what should a clinical neuropsychologist do when assessing someone from a culture different from that

of him or her? To answer this question, we must bring the topic of cultural and linguistic diversity to the focus of neuropsychological investigations and enrich our understanding of the current practices and approaches that are currently being utilised by clinicians practicing neuropsychology. Thus, it becomes crucial to address the issues and challenges in the provision of neuropsychological services to people from minority backgrounds. It is hoped that this study will stimulate interest and research in the area of cross-cultural and cross-linguistic neuropsychology which will lead to greater awareness on some of the issues identified and generate hypotheses for future testing.

In light of these factors, the goal of this study is to explore the perspectives and practices of neuropsychologists working with culturally, ethnically and linguistically diverse clients in the U.K.

The research questions are as follows:

1) How do neuropsychologists' approach an assessment in the context of the client's linguistic and cultural background?
2) What are neuropsychologists' experiences of working across language and culture?
3) What are some of the recommendations in developing cross-language and cross-cultural neuropsychological practice in the UK?

2. METHOD

2.1. Epistemology

Philosophical assumptions concerning ontology and epistemology are essential to all scientific enquiry. Epistemology represents the philosophy of knowledge and methods of obtaining it (Burr, 2003). Ontology denotes the philosophy of reality; our perception of the world around us (Bunge, 1974). Barker, Pistrang, and Elliott (2003) highlighted the importance for researchers to be mindful of the ontological and epistemological foundations of their research as these assumptions underpin and guide the methodological design and possible data analyses. Hence, a review of the philosophical position adopted by the researcher is presented below.

This research study adopted a 'critical realist' epistemological position. This paradigm is one which posits that a real external world exists yet recognises that it is not possible to fully understand our reality as our perceptions are influenced by our individual research interests and is dependent on individual interpretation (McEvoy & Richards, 2006 & Harper, 2011). Critical realism represents the notion that there are diverse valid perspectives on the world and thus, the perspectives of the people we study is an element of the world that we want to examine (Phillips, 1990). This framework suggests that scientific and technical concepts need to be analysed in the context of the material circumstances in which they exist and the socio-historical circumstances in which they have arisen (Bentall & Pilgrim, 1999). Thus, a critical realist perspective can offer new and useful ways of approaching issues and important insights into social phenomena (Maxwell & Mittapalli, 2010).

The applicability of a critical realist stance in accordance to the current study is that respondents' reflections will be based upon actual experienced events; though, accounts will be formed and relayed in a particular way representing their own subjective experiences of the world (Harper, 2011). The current issues and challenges in cross-cultural and cross-language neuropsychological practice is a reality which is shared by neuropsychologists working in these areas, however, this reality is individually encountered. These individual accounts will have been

shaped by their personal, professional, social, historical, and cultural influences and will shape how neuropsychologists perceive and make sense of cultural and language issues in neuropsychology. Critical realism considers respondents' views and experiences as true phenomena that interact with one another connectively. Therefore, this approach can enhance our understanding of the relationship between the two elements (Maxwell & Mittapalli, 2010).

Furthermore, a critical realist stance regards the researcher as involved in the process, drawing in their own experiences to make sense of the data, as this influences how the data is examined and conclusions are made (Willig, 2013). A reflexive position was endorsed in this process, representing the researcher as both, a theorist, and a thinker (Willig, 2008). The stages of the current study are outlined in depth to enable researchers to repeat the study in future, but not to yield the same results. The research is situated in a context, culture, and time. This can enable the reader to form a conclusion regarding the relevance and appropriateness of the findings to their individual circumstances (Mertens, 2015). This research is an exploratory piece of work which aims to adopt a critical realist framework to gather deeper levels of understanding from neuropsychologists (McEvoy & Richards, 2006).

2.2. Ethics

2.2.1. Ethical Approval

Ethical approval for the study was granted by the University of East London Ethics Committee (Appendix B). In addition, the proposed research was reviewed and approved by the British Psychological Society (BPS) Division of Neuropsychology (DoN) Professional Standards Unit for it to be circulated in a monthly update to its members

2.2.2. Informed Consent And Confidentiality

Prior to completing the main survey, all respondents were presented with an information page that that outlined details about the research (Appendix C). Respondents were informed that their responses would remain confidential and released as summary findings only. The researcher, the research supervisor and the university research integrity and ethics manager's contact details were given to respondents to have the opportunity to ask questions about the study.

Respondents had to confirm that they had read and understood the information about the study as it was not possible to proceed to the survey until consent had been provided (See Appendix D). To ensure anonymity, each survey was designated a unique code and any identifying details that accompanied the completed survey was removed.

2.2.3. Right To Withdraw

The information and consent page were displayed to each respondent before commencing the survey which specified that they had the right to withdraw at any time, up until the stage of data analysis. It was conveyed to respondents that they would not be penalised for this. Upon completion of the survey, respondents were presented with a debrief page, which included a brief summary of the study along with contact details of the researcher and researcher's supervisor (See Appendix E).

2.2.4. Online Data Protection

A secure online survey tool, Qualtrics, was used and data were stored on an EU-based server, in accordance with the EU Data Protection Regulation. Only the researcher and researcher's supervisor had access to the completed data set which was anonymised. No emails and geolocation data were detected in the responses.

2.3. Design

This study employed a mixed-methods, cross-sectional research design. A quantitative and qualitative survey design was used to deliver a semi-structured, self-report questionnaire consisting of open and closed questions. A mixed-methods design was used to make most of the corresponding strengths and weaknesses of quantitative and qualitative methods in answering the different research questions (Barker et al., 2015). This approach was chosen as the most appropriate means by which to record trends, patterns and associations indicated by the survey method, while also reflecting the reality of the respondent experience of neuropsychologists; highlighting the areas of learning and challenges that are experienced by them in their work.

The methodologies used in this study; both qualitative and quantitative design, are deemed suitable within a critical realism framework and the consolidation of approaches is often recommended to be the most useful approach (Bisman, 2010; McEvoy & Richards, 2006). Greene (2007) advocates that the objective for mixed method research is to create a dialogue between the different perspectives on the phenomena being analysed in order to produce generative insights and depth of understanding. Critical realism can contribute to such a dialogue as it is compatible with the fundamental characteristics of both qualitative and quantitative research. Thus, a critical realist approach can help integrate the two methods into a more coherent combination to increase the usefulness of both methods.

2.3.1. Data Analysis

Descriptive statistics were used to analyse the quantitative data. The qualitative data was subjected to two waves of analysis, including a content analysis and thematic analysis. Open-ended responses were first tabulated using content analysis and cross-examined themes were abstracted using thematic analysis.

Content analysis and thematic analysis are two common methods of qualitative analysis. Content analysis is defined as “a procedure for the categorisation of verbal or behavioural data, for purposes of classification, summarisation and tabulation” (Hancock, 1998, p. 17). It is considered a systematic and objective means of labelling and describing phenomena (Krippendorff, 1980; Downe-Wamboldt, 1992; Sandelowski, 1995). Thematic analysis is described as a “method for identifying, analysing and reporting patterns (themes) within data (Braun & Clarke, 2006, p. 6). Thematic analysis was utilised because of its flexibility and theoretical openness and potential to provide a rich and detailed account of the data (Braun & Clarke, 2006). This study adopted an inductive approach to form hypotheses for future research. The categories and themes were therefore derived from the data, taking a ‘bottom up’ approach. This approach was employed as the study is exploratory in nature and there is limited literature on the subject matter.

The content analysis was conducted according to Elo and Kyngäs' (2008) approach and thematic analysis followed Braun and Clarke's (2006) six-phase approach. This can be seen in Table 1.

Table 1: Process of data analysis in qualitative content analysis and thematic analysis

Content Analysis (Elo & Kyngäs, 2008)	Thematic Analysis (Braun & Clarke, 2006)
Preparation Being immersed in the data and selecting the unit of analysis. This research focused on the analysis of manifest content (developing categories)	*Phase 1: Familiarisation with the data* This phase started with actively reading through the open-ended survey comments several times to become familiar with the data. Initial observations and points of interest were noted down during this stage.
Organising This included open coding, collecting codes under potential categories, formulating a general description of the research topic through producing categories and subcategories as abstracting (See Appendix H and I for example of initial and final categories)	*Phase 2: Generating initial codes* The areas of interest that emerged from phase one were used together with the data to generate codes and organise the data into meaningful groups. Codes were listed in the margins of the transcript next to each data segment.
	Phase 3: Searching for themes This stage involved examining the codes to detect patterns and similarities across the data set, and then organising the codes into potential themes (See Appendix J). During this process, the relationships between superordinate themes and sub-themes were identified.

	Phase 4: Reviewing themes Identified themes were analysed and refined; some themes were divided further, and others were merged to form one theme. This stage also involved checking whether each theme was supported with evidence from extracts of the data and that the selected themes were meaningful in relation to the research questions.
	Phase 5: Defining and naming themes Themes were defined and individually examined to ensure that the essence of each theme had been captured. The themes were then organised into thematic maps which is presented in the next chapter.
Reporting Reporting the result of the previous stages through models, conceptual map or categories	*Phase 6: Writing the report* The last phase of the process involved the write-up of the analysis where the data extracts were merged together to produce a concise and coherent description of the data.

As shown in Table 1, there are similarities between the stages of data analysis for both content and thematic analysis. For example, the preparation stage in content analysis is equal to phase one in thematic analysis whereas the analytical strategies that are used in the organising phase in content analysis are also applied in thematic analysis under phases 2, 3, 4 and 5. However, there was a greater focus on phases 3, 4 and 5 in thematic analysis where themes were identified, defined and extracted from the content analysis.

2.4. Respondents

2.4.1. Recruitment

The study sample were recruited by purposive sampling. Respondents were recruited through various forums, including:

- BPS Division of Neuropsychology (DoN) via a monthly email update to members.
- Mailing groups and neuropsychology special interest groups via email
- Social media such as Facebook and Linkedin.
- General advertisement of the study through emails to neuropsychologists and local neuropsychology teams in the NHS.

The DoN constituted the greatest number of people practicing neuropsychology in the U.K. At the time of the study, there were a total of 1378 members of the DoN, 649 of which were chartered neuropsychologists.

Respondents were sent an invitation email with a link to the survey and details about the research. To enhance response rate, a follow-up invitation message was posted on the social media sites.

Respondents were required to be clinicians from the U.K with experience of working in neuropsychological settings and/or conducting neuropsychological work. Respondents that did not meet these criteria were excluded from the analysis.

2.4.2. Study Sample

A total of 100 started the survey. Of these, 78 completed the survey in full. This sample was deemed representative of U.K. neuropsychologists based on a previous DoN membership survey and BPS membership data (Yates, 2017). Personal and professional demographics of the study sample and people with DoN membership are presented in the Results chapter.

2.5. Development of Questionnaire

An online survey method was selected to be able to recruit an appropriately big sample to enhance the generalisability of findings. This was particularly helpful for increasing access to respondents from a broad range of services and physical

locations, and for recruiting staff working in busy settings, such as the NHS and private practice.

The survey was produced by the researcher in consultation with the research supervisor. Questionnaire items were produced based on a thorough review of the relevant literature and previous surveys relating to cross-cultural neuropsychology (Elbulok-Charcape et al., 2014; Echemendia et al., 1997; Arango-Lasprilla et al., 2016). Survey questions in the current study were modified to the U.K. population as items from previous surveys were based on neuropsychological practices with the Hispanic population in the U.S. and Latin America. Questions were modified according to neuropsychology training, qualifications, pay scales and employers in the U.K. New survey items were developed based on the expertise of a senior clinical neuropsychologist to address research questions from the current study.

Feedback was solicited from non-neuropsychologists and local neuropsychologists with experience of cross-cultural neuropsychology. They were asked to provide feedback on the clarity, appropriateness and importance of the questions, ease of use and completion time. The survey was amended in line with their suggestions.

Qualtrics, an online survey platform, was used to create, conduct and distribute the survey. The survey is presented in Appendix F. The survey began by providing information about the research and a consent page. Following this, the survey comprised of the following sections:

• Demographic information: questions relating to age, gender, ethnicity, location, and primary languages spoken

• Neuropsychological practice: questions relating to current neuropsychological practice, including work setting, role, post, specialty, patient groups, training, and number of years in practice.

• Language and culture (close-ended questions): questions relating to perceived challenges, test usage when working across language and culture, proportion of professional time spent with clients from non-Western cultures and limited English facility and cultural competence in administering assessments.

• Language and culture (open-ended questions): questions relating to training in cross-cultural and cross-language neuropsychology, incorporating language and culture in assessment, challenges to and suggestions for improving cross-cultural and cross-language neuropsychology.

In total, there were 24 survey items; 18 of which comprised as close-ended questions. Respondents were asked to rate their responses using a Likert scale. Six items required open-ended responses; the majority of which comprised the last two sections of the survey.

2.6. Procedure

Respondents accessed the online survey via an electronic link sent through email or posted on forums and social media sites. Upon selecting the study link, respondents were presented with an information page which was followed by an online consent form. The main survey took approximately 13-15 minutes to complete. Respondents were able to discontinue at any point during the survey. Any partial or incomplete surveys had their data removed from the dataset during analysis. Following completion of the survey, respondents were presented with a debrief page. Data recorded by respondents were sent to a password-protected spreadsheet on a secure computer accessible to only the researcher and research supervisor. This was later transferred to SPSS for analyses.

2.7. The Researcher's Position

Green and Thorogood (2010) claim that objectivity in research is not possible and that researchers should accept that subjectivity is an inevitable element of the research process. Reflexivity refers to the ability to be aware and reflect on how the researcher's views, assumptions and values may influence their reactions to the literature, data and analysis and eventually the results of the study (Nightingale & Cromby, 1999). This is known as "personal reflexivity" (Willig, 2013, p. 10). I am aware that my identity as a British Asian woman has influenced my interest in how cultural issues shape the therapeutic encounter and psychological practice. I have seen how my own cultural identity has influenced

all aspects of my practice, including the way I interact with clients or make sense of their difficulties. However, throughout my clinical placements, I learnt that that culture and race were rarely spoken about, if not avoided, and were considered unimportant in psychological practice. My interest in the topic area also relates to my earlier experiences of working in a learning disability team as an assistant psychologist where I discovered many difficulties in using the WAIS with clients with varying abilities and those from different cultural backgrounds. It became apparent to me that the WAIS was inappropriate for many people belonging to this client group, however, the scores on this test were used to establish eligibility and access to services and treatment. As a result, many that were clearly in need of services were denied access whilst others were given diagnoses that were inaccurate. These experiences have certainly influenced my choice of topic area for this research. I was keen to contribute to a limited evidence base and area of research that would provide clarity and insight on issues that are deemed relevant yet misunderstood by many.

'Epistemological Reflexivity' enabled me to reflect upon my assumptions about the world which were developed during the research (Willig, 2013). By adopting a critical realist position, I was aware that I was presenting a certain view of the world that respondents in this study may not share. Thus, I was mindful that the research questions and survey questions were influenced by my perspective of the world and this perspective may have been projected onto respondents. The feedback and suggestions from clinical neuropsychologists, some with considerable expertise in the area, were used to review and refine the survey questions to avoid any potential biases. I am also aware of the broader socio-cultural context of this study and how this can shape the findings of this research. For example, UK neuropsychologists are situated in a system that endorses a western-based model of healthcare which is dependent on western values, beliefs and practices. This is likely to influence the views and experiences of neuropsychologists that have taken part in this study.

Keeping a reflexive journal throughout this study allowed me to reflect on certain aspects of the research process and consider biases that were likely to influence the way the data had been understood.

3. RESULTS

This chapter aims to present the key findings of the study which utilised a semi-structured self-report questionnaire consisting of open- and close-ended questions.

3.1. Overview Of The Data Analysis

Quantitative data analysis was used to explore close-ended questions. This consisted of questions from 1 to 28 from the survey. Frequencies were reported for each question and/or response. The data was downloaded from the Qualtrics server and analyses were conducted using SPSS 22.0 (IBM Corporation, 2013). SPSS output can be found in Appendix G. Qualitative data was subjected to two stages of analysis. This consisted of open-ended questions starting from 29 to 33. The first stage involved conducting a qualitative content analysis (Elo & Kyngäs, 2008) to code and summarize responses and develop categories. The second level of analysis used thematic analysis (Braun & Clarke, 2006) to identify and extract recurring themes from the content analysis. This analysis is presented in the Discussion chapter.

This chapter will firstly present the personal and professional demographics of the sample. This will be followed by findings from the quantitative and qualitative data which will answer the research questions:

- How do neuropsychologists' approach an assessment in the context of the client's linguistic and cultural background?
- What are neuropsychologists' experiences of working across language and culture?
- What are some of the recommendations in developing cross-cultural and cross-linguistic neuropsychological practice in the UK?

3.2. Response Rate

A total of 100 respondents started the survey. Of these, 78 people completed the survey in full, representing a 78% usable response rate. Twenty-two respondents either started the survey but did not complete it or had incomplete data.

3.3. Sample of respondents

3.3.1. Personal Demographics

Survey results pertaining to personal demographics presents data on a number of variables including age, gender, ethnic group, location and language.

3.3.1.1. Age, gender and ethnicity: The majority of respondents were aged between 35 to 44 years (39.7%). Just less than a quarter of the sample were aged between 25 to 34 years (24.4%) and 45 to 54 years (23.1%). The 55 to 64 (10.3%) and 18 to 24 (1.3%) age groups were less well-represented in the sample. The average age of the respondent was 41.7. In addition, there was a higher proportion of females (79.5%) compared with males (20.5%). These sample characteristics are demographically representative of members belonging to the British Psychological Society (BPS) Division of Neuropsychology (DoN). DoN membership is likely to constitute the greatest number of people practicing neuropsychology in the U.K. An analysis of the DoN membership data (Yates, 2017) revealed that 72% of DoN members were female and 59% were aged 40 years or above whereas less than a quarter of members were aged between 31 to 40 years.

In terms of ethnicity, 60.3% of respondents in the current study identified as 'White English,' whereas 23.1% of respondents identified as either 'White Scottish' (3.8%), 'White Welsh' (2.6%) or 'White Other' (16.7%). Within the 'Asian' ethnic group, 7.6% of the sample consisted of either 'Asian Indian' (3.8%), or 'Asian Other' (3.8%) and 1.3% comprised of 'Mixed White and Asian.' Lastly, 6.4% of respondents classified themselves as 'Irish' whereas individuals identifying as 'Black African' (1.3%) were less represented.

A substantial proportion of the respondents identified as being from a BME group (33.3%), and therefore the study sample was ethnically diverse[2]. It is possible that the sample includes people with an interest in the topic or reflects the proportion of BME people in London and the South East of England *(see section 3.3.1.2 below).*

3.3.1.2. Location: Most of the respondents were from London including Greater London (44.9%) and the South East (23.1%). This was followed by respondents located in the North West (6.4%), South West regions (6.4%) and Cymru Wales (5.1%). 2.6% of the sample reported their location as either the East of England (2.6%), Yorkshire and the Humber (2.6%) and U.K. Regions (2.6%). The East Midlands (1.3%), North East and Cumbria (1.3%), Northern Ireland (1.3%), West Midlands (1.3%) and France (1.3%) were the least frequently reported locations. Members of the Division of Neuropsychology were also more likely to work in Greater London or the South East (Yates, 2017).

3.3.1.3. Language: Almost all the sample reported English as their primary language (97.4%). Two respondents reported a different primary language and sixteen reported being proficient in other languages, with Spanish being the most common. This can be seen in Table 2 below. This study, therefore, does not represent the few people who do not have their primary language as English.

[2] Percentage of BME respondents in the current study was calculated according to the definition of BME groups outlined in section 1.2.5. A broad 'Irish' ethnic category was used in the survey, and hence, 'Irish' respondents were classified as BME.

Table 2: Language[3]

	Frequency (N)	Percentage of sample (%)
Other languages	16	20.5
Dutch	1	6.2
German	1	6.2
French	7	43.7
Spanish	5	31.2
Hindi	2	12.5
Portuguese	1	6.2
Punjabi	1	6.2
Danish	1	6.2
Catalan	1	6.2
Swedish	1	6.2
Urdu	1	6.2
Welsh	1	6.2

Table 3: Work setting and role[3]

	Frequency (N)	Percentage of sample (%)
Sector	78	100
NHS	64	82.1
Private healthcare provider	9	11.5
Social services	0	0
Charitable or voluntary sector	2	2.6
Independent or private practice	34	43.6
Employee assistance programme	0	0
Higher education institution	6	7.7
Research centre, institute or organisation	3	3.8
Role	78	100
Clinical psychologist in training	2	2.6
Clinical psychologist	36	46.2
Clinical neuropsychologist	15	19.2
Consultant neuropsychologist	21	26.9
Educational psychologist	2	2.6
Research neuropsychologist	2	2.6
Post	57	73
NHS Band 7 (or equiv. post qualification)	9	15.8
NHS Band 8a (or equiv. specialist/senior)	18	31.5
NHS Band 8b (or equiv. principle/specialist)	9	15.7
NHS Band 8c (or equiv. consultant/lead	12	21
NHS Band 8d (or equiv. or service leader)	7	12.2
NHS Band 9 (or equiv. or senior manager)	2	3.5

[3] *Some respondents stated more than one response hence the variation between the number of individual responses and the total frequency*

3.3.2. Practice-Related Demographics

Practice-related demographics highlights data relevant to respondents' current role and work settings, specialty and patient populations served, training and qualifications and years worked in neuropsychology.

3.3.2.1. Current role and work setting: Respondents indicated a variety of work settings in which they perform their neuropsychological work, with most being involved in the NHS, followed by independent or private practice and a private healthcare provider (See Table 3). These findings closely matched work-related demographics of members that completed the DoN membership survey (Yates, 2017). This survey aimed to elicit information about respondents' work patterns that was not available through the BPS member networks database (Yates, 2017). In line with the current findings, the DoN survey found that respondents were predominantly NHS practitioners (60%), followed by 35% of respondents who reported working privately or being self-employed. This trend has been observed across psychology as a wider profession whereby the majority of U.K. clinical psychologists work in NHS services (BPS, 2015).

With respect to the type of role, most respondents in the current study identified as either clinical psychologists, consultant neuropsychologists or clinical neuropsychologists. Educational psychologists, research neuropsychologists and clinical psychologists in training were the least popular roles within the sample. In terms of post and banding, the majority of respondents indicated NHS Band 8a or equivalent and NHS Band 8c or equivalent. NHS Band 7 or equivalent, NHS Band 8b or equivalent and NHS Band 8d or equivalent also proved fairly common amongst respondents. This information is shown in Table 3. However, a reverse pattern was observed in the DoN survey, with the majority of NHS employees working at band 8c (30%) followed by band 8a (21%). The difference in grading amongst staff reflects the type of neuropsychology services provided as a higher grade indicates more experienced clinicians who are likely to be working in more complex settings (BPS, 2015). But, in contrast, this sample was relatively junior.

Table 4: Specialities and patient groups[4]

	Frequency (N)	Percentage of sample (%)
Specialty	78	100
Adult mental health care	8	10.3
Adult physical health or liaison	6	7.7
Adult acute neuropsychology	21	26.9
Adult neuropsychology rehabilitation	46	59
Children & families mental health	2	2.6
Child physical health or liaison	1	1.3
Child acute or paediatric neuropsychology	4	5.1
Child neuropsychology rehabilitation	3	3.8
Services for people with learning difficulties	2	2.6
Older adult MH care	12	15.4
Older adult physical health or liaison	1	1.3
Memory clinic or dementia services	19	24.4
Medico-legal	0	0
Neuropsychiatry	1	1.3
Epilepsy	2	2.6
Patient groups	78	100
Adult cognitive disorders	49	62.8
Acute neurology	22	28.2
Stroke & ABI rehabilitation	41	52.6
Acute stroke & ABI	29	37.2
Head injury: moderate & severe	47	60.3
Head injury: mild (mTBI)	41	52.6
HIV	8	10.3
Child development or disability	6	7.7
ADHD	3	3.8
Specific learning disorder	5	6.4
Autism & autistic spectrum presentation	5	6.4
Psychosis	3	3.8
Memory clinic & dementia diagnosis	32	41
Functional disorders & mental health	5	6.4
Health & oncology	3	3.8
Epilepsy	4	5.1

[4] *Some respondents stated more than one response hence the variation between the number of individual responses and the total frequency*

3.3.2.2 Specialty and patient presentations: The majority of respondents endorsed their main specialty as adult neuropsychology rehabilitation, followed by adult acute neuropsychology and memory clinic and dementia services. Medico-legal, child physical health, older adult physical health and neuropsychiatry were the least popular specialties among respondents. This is congruent with findings from the DoN membership survey (Yates, 2017) which revealed that respondents predominantly worked in community neuropsychology or neuro-rehabilitation services (45%), followed by inpatient neuro-rehabilitation services (23%) and dementia and older people services (23%).

Respondents served a variety of patient populations, most frequently adults with cognitive disorders and clients with moderate and severe head injury. Just over half of respondents reported working with clients with stroke and ABI rehabilitation and clients with mild head injury. Dementia and memory conditions, acute stroke and acquired brain injury and acute neurological conditions were also among the patient populations that were frequently tested whereas ADHD, psychosis, health and oncology were the least frequently tested patient groups. Table 4 presents the complete list of specialties and patient populations. The data implies that there is generally good representation of work performed by clinicians in the UK, but adult neuropsychology-specific specialties and patient groups were most popular amongst respondents.

3.3.2.3. Training and Qualifications: Table 5 summarises responses related to issues of professional training. The percentage of respondents holding a doctorate in clinical psychology was highest. This may reflect the fact that most UK clinical neuropsychologists are primarily qualified as clinical psychologists. Less than half of respondents completed a post-qualification diploma or certificate in clinical neuropsychology followed by just less than a quarter of respondents that completed the BPS qualification in clinical neuropsychology (QiCN). This highlights that a high proportion of respondents work in neuropsychology without having a post-graduate qualification in neuropsychology.

Table 5: Training and qualifications[5]

	Frequency (N)	Percentage of sample (%)
Training	78	100
Pre-qualification MSc in neuropsy. or neurosci.	14	17.9
Doctorate in counselling psychology	0	0
Doctorate in clinical psychology	71	91
Doctorate in educational psychology	0	0
Post-qual. diploma/cert. in clinical neuropsy.	31	39.7
Post-qual. MSc clinical or applied neuropsy.	8	10.3
Post-qual. BPS division of neuropsy. QiCN (PFM)	18	23.1
Research PhD in neuropsy. or a related area	13	16.7
Post-qualification/CPD	2	2.6

Table 6: Years worked in neuropsychology

	Frequency (N)	Percentage of sample (%)
Years in practice	78	100
1 year	6	7.7
2 years	6	7.7
3 years	3	3.8
4 years	5	6.4
5 years	3	3.8
6 years	2	2.6
7 years	1	1.3
8 years	2	2.6
9 years	5	6.4
10+ years	45	57.7

3.3.2.4. Amount of time spent working in neuropsychology: Over half of respondents (57.7%) reported working in the area of neuropsychology for 10 years or more. The average respondent reported practicing neuropsychology for approximately 7.6 years. Please see Table 6 above.

[5] *Some respondents stated more than one response hence the variation between the number of individual responses and the total frequency*

3.3.2.5. Summary: The data shows that the study sample is representative of U.K clinical neuropsychologists based on DoN membership, although it may be less representative of males, older clinicians and people who work in parts of the country other than Greater London and the South East of England. However, it is important to note that not all clinicians practicing neuropsychology in the UK took part in the current study or DoN survey or have membership with the DoN. Therefore, the present data will not fully represent the activities and practices of all clinicians working in neuropsychology. However, the data provides a snapshot in time of the status and trends occurring in the field of clinical neuropsychology in the U.K.

3.4. Quantitative Results: Language and Culture

This section will present quantitative findings relating to cross-cultural and cross-language neuropsychology practice. The findings will highlight challenges to working across language and culture, the proportion of work with clients from non-Western and European cultural backgrounds and no or limited English, the level of competence in administering neuropsychological assessments with clients from diverse linguistic backgrounds and the tests and instruments used when working with different cultural and linguistic client groups.

3.4.1. Challenges To Working Across Language And Culture

The data indicates that the issues in working across language and culture were perceived to be equally challenging by respondents. The overwhelming majority of respondents reported that the following were the greatest challenges to working across language and culture: having normative data available for a test matching a client's cultural background, administering tests and procedures via an interpreter in a client's preferred language and having tests and procedures available which are appropriate to a client's cultural background.

Clients with either no or limited facility in the English language, administering tests and procedures via an interpreter appropriate to a client's cultural background and having tests and procedures available in a client's preferred language were also common challenges indicated by respondents. However, these challenges were not as prominent as the issues highlighted above.

The least frequently endorsed items were determining a client's experience of formal education and administering tests and procedures myself in a language other than English. This is presented in Table 7 below.

Table 7: Challenges in cross-cultural neuropsychology[6]

Challenges	Frequency (N)	Percentage of sample (%)
	78	100
Clients with limited facility in English language	61	78.2
Clients with no facility in English language	62	79.5
Determining proficiency in English language	39	50
Clients from non-Western/European cultural background	52	66.7
Determining acculturation to Western/European cultures	40	51.3
Clients with limited formal education	50	64.1
Determining client's experiences of formal education	31	39.7
Tests available in client's preferred language	61	78.2
Administering tests via interpreter in preferred language	67	85.9
Administering tests myself in other languages	24	30.8
Administering tests via interpreter appropriate to culture	61	78.2
Tests available which are appropriate to client's cultural background	66	84.6
Normative data matching client's cultural background	68	87.2
Interpreting test scores in client's language	57	73.1

3.4.2. Proportion Of Work Involving Clients With No Or Limited Facility In English And From Non-Western And European Cultures

As shown in Table 8, the vast majority of respondents reported that 10% of their work involved working with clients with no or limited English. This was followed by a smaller percentage of the sample who reported that a higher proportion of 30%

[6] *Some respondents stated more than one response hence the variation between the number of individual responses and the total frequency*

of their caseload involved working with this client group. Only three respondents reported a caseload of 60% or above.

The percentage of work involving clients from non-Western and European cultures was slightly different. The majority of respondents indicated that 10% of their work involved working with this client group. Almost half of the sample reported a work caseload ranging from 20% to 60%. No respondents reported having a caseload between 90 to 100% that involved clients from diverse cultural backgrounds. These findings indicate that respondents perceive cross-cultural issues and cross-language issues as being different and that culture appears to be a greater problem than language.

Overall, as the proportion of caseload increased involving both, clients with no or limited English and those from non-Western European cultures, the percentage of respondents decreased. Therefore, respondents were more likely to have a smaller proportion of caseloads working with culturally and linguistically diverse clients.

3.4.3. Level Of Competence

Respondents were asked to rate their level of competence in administering neuropsychological assessments with clients from diverse linguistic backgrounds. The scale ranged from *'extremely competent'* to *'extremely noncompetent.'* The results indicated that a smaller number of the sample rated their ability as '*extremely competent'* or *'moderately non-competent'* whereas none rated themselves as *'extremely noncompetent.'* Respondents were more likely to fall in the range between *'moderately competent'* and *'slightly noncompetent.'* Overall, the data indicates that most people feel moderately or slightly competent in administering neuropsychological assessments with clients from different linguistic groups. These results can be seen in Table 9.

Table 8: Proportion of work with clients with no/limited facility in English and clients from non-Western/European cultures

	Frequency (N)	Percentage of sample (%)
No or limited English	75	100
10%	42	53.8
20%	6	7.7
30%	12	15.4
40%	6	7.7
50%	6	7.7
60%	1	1.3
70%	1	1.3
80%	0	0
90%	0	0
100%	1	1.3
Non-western/European cultures	75	100
10%	35	44.9
20%	8	10.3
30%	3	3.8
40%	8	10.3
50%	11	14.1
60%	7	9.0
70%	2	2.6
80%	1	1.3
90%	0	0
100%	0	0

Table 9: Level of competence

	Frequency (N)	Percentage of sample (%)
Competence	66	100
Extremely competent	6	7.7
Moderately competent	23	29.5
Slightly competent	16	20.5
Neither competent nor competent	7	9.0
Slightly noncompetent	8	10.3
Moderately noncompetent	6	7.7
Extremely noncompetent	0	0

3.4.4. Tests And Instruments

Respondents were asked about their use of tests and instruments when working across language and culture. As summarised in Table 10, the Weschler scales were the most frequently used instruments, with subtests of the Weschler Adult Intelligence Scales being the most popular amongst respondents. Some respondents indicated the use of other tests and instruments when working across language and culture. Apart from the Weschler scales, the most commonly used neuropsychological instrument was the DKEFS, followed by subtests of RBANS test and doors and peoples test and the rey osterrieth complex figure. Among the culture-fair tests, such as DAS Naglieri, CTONI, Leiter-3, Beta 3, the Weschler non-verbal scales were more prominent. There also appeared to be little use of tests that have been produced in different languages and are widely available such as the RUDAS, translated ACE-III and translated MOCA. This suggests that several culture-fair and translated tests are not being widely used. Over half of the sample used translated or culturally-adapted versions of neuropsychological tests whereas less than half reported using bespoke or local tests and norms.

Table 10: Tests and instruments

	Frequency (N)	Percentage of sample (%)
Tests	78	100
Bespoke or local tests and norms	32	41
Translated/culturally-adapted neuropsychological tests	44	56.4
Subtests of Weschler adult intelligence scales	65	83.3
Subtests of Weschler child intelligence scales	7	9.0
Subtests of Weschler pre-school & primary intelligence	6	7.7
Subtests of Weschler memory scales	43	55.1
Weschler non-verbal scales	28	35.9
DAS Naglieri	0	0
CTONI	1	1.3
Leiter-3	3	3.8
Beta 3	0	0
Other	26	33.3
Other tests	26	33.3
DKEFS	5	22.7
Subtests of RBANS	4	18.1
Subtests from Doors and People test	4	18.1
Rey-Osterrieth Complex Figure test	4	18.1
Translated RBANS	2	9
Visual tasks from other batteries	2	9
VOSP	2	9
Subtests from BADS	2	9
KBNA	2	9
BMIPB	2	9
Weschler Literacy and Numeracy tests	1	4.5
MOCA	1	4.5
Arabic doors and people test	1	4.5
TEACH	1	4.5
WIAT	1	4.5
DASH	1	4.5
Subtests from NAB	1	4.5
RUDAS	1	4.5
Translated ACE-III	1	4.5
Translated MOCA	1	4.5
Ravens Matrices	1	4.5
Recognition Memory Battery	1	4.5
Trail making test	1	4.5
Sorting test	1	4.5
CVLT-II	1	4.5
Colour Trails Test	1	4.5
Pyramid and palm trees test	1	4.5
Naming tests	1	4.5
WASI	1	4.5
Subtests from the NEPSY	1	4.5
CPT	1	4.5
Camden picture/topographical/face recognition	1	4.5
Brixton spatial anticipation task	1	4.5
Tests that have normative data in person's language	1	4.5
Mixture of some translated tests	1	4.5

3.5. Qualitative content analysis

This section will present a qualitative content analysis for the open-ended survey questions. The survey incorporated the following five questions which will be examined in detail below:

- What training have you found useful in working across language or culture?
- How do you take language into account when planning or undertaking neuropsychological assessment?
- How do you take cultural factors into account when planning or undertaking neuropsychological assessment?
- What do you feel are the main challenges to cross-language and cross-cultural neuropsychology practice in the UK?
- What suggestions do you have for developing cross-language and cross-cultural neuropsychology practice in the UK?

A table for each of the five questions, including categories and subcategories can be seen in Appendix I.

3.5.1. What Training Have You Found Useful In Working Across Language Or Culture?

Respondents described a variety of training approaches to facilitate them to work across language and culture in their clinical practice. Three core categories emerged from the analysis of the data, including formal training, informal learning and none or limited training.

3.5.1.1. Category: Formal training: This category encapsulates formal training approaches based on teaching programmes and events and workshops. The majority of responses in this category included the participation in teaching and training programmes, namely the doctorate in clinical psychology and post-graduate diploma in neuropsychology. This was regarded as the main approach to learning about language and culture in neuropsychology.

P2: *“DClin/diploma in neuropsychology lectures on cultural diversity / appropriateness of tests”*

P9: ***“****Limited relevant information presented during DClinPsy training, but more in the PGDip completed.”*

A few respondents reported attending training through CPD events and workshops, some of which were facilitated by the British Psychological Society (BPS).

P77: *“CPD events that focus on cross-cultural issues and mental health have been helpful to varying degrees, including issues relating to refugees.”*

P74: *“Advanced training in working with interpreters arranged by BPS”*

3.5.1.2. Category: Informal learning: A range of informal learning methods were also identified by respondents. Many respondents emphasised the importance of accessing and utilising clinical supervision to explore issues relating to their work with diverse clients.

P73: *“No formal training but requesting supervision when working with people of different ethnic origin / English not as first language.”*

P36: *“Discussion about test selection, test results and interpretation in supervision.”*

Other respondents acknowledged that it was helpful to work with different colleagues and consolidate senior colleagues for advice on clinical cases.

P50: *“I also draw on colleagues' advice at times regarding specific cases when I need it”*

P32: *“Working with colleagues of different backgrounds”*

Several respondents identified learning through a number of resources including articles, books and research papers to improve their knowledge on cross-cultural neuropsychology.

P37: *"Research and clinical literature that pertains to this to improve my knowledge and expertise"*

P55: *"Reading specialist neuropsychological papers on working with people from multi-cultural backgrounds and books on cross-cultural neuropsychology"*

One respondent emphasised learning through experience rather than formal training.

P72: *"Probably experience rather than training. Each client I work with will contribute something to my knowledge about their culture and language."*

3.5.1.3. Category: None or limited training: The issue of having none or limited training was dominant throughout the data. Respondents expressed that the training they had engaged in was of little value or too basic and outdated.

P49: ***"****I have found very little helpful training. There is plenty of work identifying problems but very little work on how to tackle this when you work across a lot of different cultural/language bases."*

P46: ***"****I haven't really received any teaching that has been that useful regarding working across language and culture. Perhaps teaching sessions using interpreters back when I was on the doctorate, but that was a long time ago and very basic."*

3.5.2. How Do You Take Language Into Account When Planning Or Undertaking Neuropsychological Assessment?

This section highlights the different ways in which respondents incorporated linguistic factors when planning and undertaking neuropsychological assessment. Categories included: neuropsychological tests and norms, assessing language ability, integrative approach, and challenges in assessment.

3.5.2.1. Category: Neuropsychological tests and norms: The use of neuropsychological tests and norms, including standardised measures, was endorsed by many respondents in their assessment of linguistically diverse clients. Most respondents noted a preference for culture-free tests, including non-verbal tests whilst others cited specific instruments or focused on the qualitative aspects within tests.

P74: *"Using non-verbal tests to limit language impact unless test is validated and translated with target population."*

P76: *"Use a much-reduced battery and use 'language-free and culture-free tests if possible."*

P34: "*I tend to use language conceptual tests, e.g. Palms and Pyramid Test."*

P55: "*Paying more attention to the qualitative information that emerges per test."*

Some respondents reported employing special approaches in their assessment.

P32: *"Look into getting written materials translated in advance, create translated stimulus sheets if needed, see if language versions of the tests exist"*

P64: "*Sometimes I score the measures up using standard norms to see if there is a significant difference between the norm groups."*

3.5.2.1.1. Subcategory: Use of an interpreter: Many respondents reported using

an interpreter to facilitate the assessment process and consider language issues. Some emphasised that a level of preparation with the interpreter was necessary prior to testing.

P77: *“I would discuss any elements of the assessment that may be 'culturally challenging' and adapt my assessment accordingly.”*

P33: “*Asking questions about how a language works with the interpreter.”*

P55: "*I use interpreters. I ensure that the interpreter is appropriate and brief them beforehand especially about the need for standardization"*

P46: *"Ensuring that they know the direct translation to key words e.g. memory assessments"*

3.5.2.2. Category: Assessing language ability: The assessment of language ability and proficiency was reported by many respondents. There appeared to be two main components to this assessment, including, assessing a client’s pre-morbid and current level of proficiency in the English language and determining their preferred language.

P44: *"Establish how much English the person was able to speak prior to neurological impairment"*

P57: "*If English not first language, consider fluency and understanding of preferred language."*

P40: "*Thorough consideration of educational languages, home language, nature of the language – i.e. spoken, written, alphabetical, western etc. Concepts of bilingualism, multilingualism, primary, dominant or other language."*

P35: “Important to consider language - first language, ability to communicate etc, as essential part of testing”

3.5.2.3. Category: Integrative approach: In contrast to using standardised neuropsychological instruments, this category is concerned with adopting an integrative approach that combines different aspects of the assessment to gather a broader picture of a client's abilities. This includes a clinical interview and collaborating with key people in the client's system. It appeared that a clinical interview was favoured by a number of respondents.

P70: *"Make a thorough assessment of the service user's background (e.g. first language Welsh and educated in the Welsh medium) and of the factors which might impact on their functioning during testing (e.g. that their eyesight, hearing, room configuration, lighting etc) are optimised."*

P1: *"Occupational role and employment opportunities, qualifications, country of education, school and reading ability, SALT liaison."*

Respondents reported finding it helpful to collaborate with key people within the client's system. For some, this included carrying out consultation work with colleagues or conducting joint assessments.

P77: *"I will request information from multiple sources (e.g. family, teachers, referrer)"*

P50: *"...This may involve joint neuropsychological assessment and occupational therapy functional assessment to get a fuller picture."*

P31: *"Often work with patients with limited language due to aphasia - consult with SALT colleagues."*

3.5.2.4. Category: Challenges with assessment: Several challenges in conducting assessments with clients from different linguistic backgrounds were highlighted.

P56: *"Clients who fit in this category are very small in the geographical area I work in so when they are referred, I can feel very deskilled in this type of assessment."*

P56: *“It is often difficult in pressured NHS setting to have time to adequately find out information, plan sessions or assessments etc."*

P31: *"I have had the impression people can feel patronised if you suggest that tests may not be appropriate as they think you are implying their language is not 'good enough"*

Moreover, the limitations of using neuropsychological instruments were identified by many respondents. A few respondents expressed avoidance in using tests and norms that were deemed unsuitable for a client’s linguistic background.

P51: “*We remove certain test items we deem to be most damaging to test validity; we accept that tests within the language domain will have very limited validity indeed.”*

P11: *“Don’t rely on normative data when the assessment is translated into another language to the normative data”*

3.5.3. How Do You Take Cultural Factors Into Account When Planning Or Undertaking Neuropsychological assessment?

This section demonstrates the various ways in which respondents have dealt with cultural factors when planning or undertaking neuropsychological assessment. Multiple categories were identified including, awareness of culture, neuropsychological tests and norms and comprehensive clinical interview. Several subcategories were identified which are presented below.

3.5.3.1. Category: Awareness of culture: This issue reflects the importance of being aware of and attending to a client's cultural background. Respondents described a number of methods to help them achieve cultural awareness, including, exploring a client’s cultural context, learning about a specific culture and involving the client and family in the assessment process. These are presented as subcategories below.

3.5.3.1.1. Subcategory: Exploration of client's cultural context: A few respondents reported developing an understanding of a client's cultural beliefs in the assessment. This was considered important in being able to understand a client's issues within the context of their culture.

P72: "*Exploring the symptoms in the context of the client's culture (e.g. less involvement in housework could be a cultural expectation rather than change in functional ability)"*

P66: *"Try and look into the cultural beliefs about a diagnosis within their culture to inform us, but not to bind us to a hypothesis...consider different cultural beliefs around illness, roles, education, gender, etc."*

3.5.3.1.2. Subcategory: Learning about culture: Other respondents spoke about engaging in self-directed reading and research to increase their knowledge about a culture. Less senior members of staff were more likely to consult senior colleagues to develop their understanding on cultural issues.

P18: "*If I'm unsure of how culture may play a part in my assessment, I seek supervision, do some research, look at papers relating to assessment with this population."*

P63: "*Might discuss with more experienced colleague/ neuropsychologist given my limited expertise in this area"*

3.5.3.1.3. Subcategory: Involvement of client and family: Some respondents reported involving both the client and family in the testing process to further their understanding of a client's culture.

P48: *"We try to discuss culture when setting rehab goals, we ask patients and family directly how important religion/ culture is to them when thinking about recovery."*

P77: *"I will discuss testing process with the client and their family, i.e. whether they are familiar with the 'everyday' elements of the assessment. Also, small things - how do they wish to be addressed? How do they address me? Have they ever been 'tested' before and how does this feel to them?"*

3.5.3.2. Category: Neuropsychological tests and norms: This category represents respondents' views on selecting and utilising standardised neuropsychological tests that are considered suitable for a client's cultural background. Most respondents indicated the use of non-verbal tests and special measures such as adapting tests when taking cultural factors into account.

P34: *"I use only non-verbal tests and try to explain as best as possible the test situation to the patient."*

P54: "*In the borough where we work, we often work with clients from one particular cultural group other than White British, therefore, we have experience as a service of adapting the assessments to be more culturally appropriate."*

3.5.3.2.1. Subcategory: Limitations of neuropsychological tests and norms: Many respondents conveyed understanding of the limitations of using neuropsychological tests with different client groups.

P49: *"I am wary of using tests which are created within a very different cultural system and with norms for a different cultural group."*

P73: "*I try to take into account whether a test is appropriate based on my knowledge (if any) of cultural differences"*

3.5.3.2.2. Subcategory: Interpreting with caution: There was a recognition that test results should be interpreted with caution and communicated within the findings of the report.

P55: "*Being cautious about the interpretation of the findings given the lack of validity and reliability of tests for people of multi-cultural backgrounds"*

P2: “*Always include in assessment, interpretation and clinical formulation… and explicitly referred to in the report.”*

P51: “*We exercise extreme caution in the interpretation of results when deviating from standardised procedures.”*

3.5.3.3. Category: Comprehensive clinical interview: Several respondents highlighted the importance of conducting an in-depth clinical interview that incorporates a variety of factors such as cultural beliefs and functional assessment. It was noted that more senior members of staff were likely to endorse this practice when working with clients from different cultural groups as well as use best clinical judgment to make decisions.

P14: *“Try to take a more qualitative approach and rely on best clinical judgement to come to a decision.”*

P49: "*It is necessary to understand the cultural beliefs and background, the level of education and the expected norm in education. I ask a lot of questions about level of acculturation to the UK."*

P50: *“Functional assessment information and MDT work can be helpful to get the fullest picture possible."*

3.5.4. What Do You Feel Are The Main Challenges To Cross-Language And cross-Cultural Neuropsychology Practice In The UK?

Numerous challenges in cross-language and cross-cultural neuropsychological practice in the U.K. were raised by respondents. This covered a range of categories, including the limitations of neuropsychological tests and norms, a lack of awareness on the limitations of tests, difficulties in using interpreters, issues within the profession and cross-cultural challenges. Several

subcategories also emerged from analysis of the data which will be examined below.

3.5.4.1. Category: Limitations of neuropsychological tests and norms: The disadvantages of neuropsychological tests and norms was highlighted as a key challenge. The majority of respondents described the difficulties in selecting and using neuropsychological instruments for clients from varying cultural and linguistic backgrounds. Subcategories related to a lack of appropriate norms and tests and a lack of validity and reliability of neuropsychological tests.

3.5.4.1.1. Subcategory: A lack of norms and tests: The lack of adequate norms and tests was a prominent issue that emerged from the data. Many respondents felt that the absence of appropriate measures could have an overall impact on a client's test performance and the outcome of the assessment. One respondent revealed having to rely more on the clinical interview.

P54: *"A lack of availability of culturally appropriate tests/tests in different languages, and also a dearth of norms for different cultural/language groups. We have to rely a lot more on the clinical interview, observations and medical history in order to hypothesise, rather than being able to rely on the neuropsych tests."*

P43: *"Lack of tests that can be used for people with different language and cultures leading to the necessity of English, Western tests being used and, in some respects,, translated. The assessment of language function is always limited and so a poorer assessment is completed leading to difficulties in diagnosis, rehab etc."*

3.5.4.1.2. Subcategory: A lack of validity and reliability of tests: A number of respondents commented on the limited validity and reliability of neuropsychological tests.

P70: *"The validity and reliability of the outcomes and the specificity and sensitivity of the testing materials."*

P66: *"The relevancy of the tests, i.e. some tasks will benefit from having access to certain societal information such as WISC - "who is Winston Churchill?" and in vocabulary "what is a pest" - also pictures can be very difficult to interpret if their associations have been different from their cultural background - matrix reasoning. Testing can seem really unfair and results therefore disappointing - and not reflect how able a child is due to the English bias."*

3.5.4.2. Category: Lack of awareness on the limitations of tests: Some respondents reported that there was an overall lack of awareness and understanding on the limitations of neuropsychological tests for people from diverse cultural and linguistic backgrounds. There was a sense that clinicians should avoid using standardised and translated tests for this client group.

P33: *"There needs to be an understanding about the deeper differences that mean the tests are deeply flawed with other populations and do not measure the same thing no matter how much translation is use. Clinicians should not use interpreters or translations of tests and then apply the norms etc. In my experience it's not really appropriate to use any of the tests as the items and norms are quite different, developmental trajectories can be different in different cultures so the order or expectations of items is not appropriate, let alone the norms. Using standardised tests with clients from other cultures and direct translations are not appropriate either as language is very different so assessment in general is a challenge."*

One respondent suggested that limited awareness on the drawbacks of neuropsychological tests could be due to a lack of opportunities to develop cross-cultural and cross-linguistic experience.

P50: *"Awareness and understanding of the limitations of assessment tools may be lacking as in many posts clinical psychologists don't get the opportunity to clock up a lot of neuropsychology practice."*

3.5.4.3. Category: Difficulties in using interpreters: A range of difficulties were associated with using interpreters in clinical practice.

P61: *"Working with interpreters of varying ability."*

P36: *"Lack of availability of skilled interpreters"*

P56: *"It is often difficult getting an interpreter in the clients chosen language or dialect anyway"*

P73: "*This isn't without challenges as you then rely on completed accurate translation to ensure that a test is administered in a standardised manner and likewise for responses"*

One respondent reflected on the impact that the challenges can have on neuropsychological assessment.

P9: *"Limited awareness in interpreters of neuropsychological assessment issues and need to stick to standard administration procedures in the first instance."*

3.5.4.4. Category: Issues within the profession: Respondents identified that a lack of cultural and linguistic diversity amongst staff within the profession and limited teaching and training pertaining to cross-cultural and cross-linguistic neuropsychology were two significant barriers to developing cross-language and cross-cultural neuropsychology practice.

3.5.4.4.1. Subcategory: A lack of diversity in the profession: Some respondents acknowledged a lack of diversity within the workforce and described the impact this had on their work with clients and the wider profession.

P72: "*Probably the main challenge is not enough diversity in the staff force (clients having access to assessments in their own language, influences of research and development of more tools)."*

P75: *"Lack of diversity in specific localities leading to lack of understanding which could generate fear about working with people cross-culturally."*

3.5.4.4.2. Subcategory: Limited teaching and training: Many respondents highlighted the lack of teaching and training in cross-cultural and cross-language neuropsychology as a prominent issue.

P27: "*Lack of teaching and training on this topic within neuropsychology and more broadly in D.Clin.Psy courses, lack of cultural sensitivity within neuropsychology services generally and lack of service user input into other services"*

3.5.4.5. Category: Cross-cultural challenges: This category describes the difficulties faced by respondents in conducting neuropsychological assessment with different client groups. Some of the difficulties are represented as subcategories below.

3.5.4.5.1. Subcategory: Cultural variation in clinical population: One respondent highlighted that cultural and linguistic diversity within the clinical population can lead to difficulties in assessing people from different backgrounds.

P11: "*Diversity of population and wide range of cultural experiences and languages. Difficulty understanding how these differences impact on assessment*."

Some respondents reported the opposite, i.e. that a lack of exposure to clients from BME and EAL groups presented with fewer opportunities to learn.

P73: "*Limited opportunity for this in the geographical area I work in, I'd say less than 5% of patients over a year fit within this bracket so not a lot of opportunity to learn"*

3.5.4.5.2. Subcategory: Limitations of western-based model: Some respondents reported that a western-based model of neuropsychology was not suitable for working with clients from different cultures.

P49: "*Our western rehab system depends on a client learning how to understand and take responsibility for their own difficulties and this is the antithesis of expectation for many of the people I work with."*

P4: "*A fundamental lack of understanding as to what represents "normal" in behavioural, cognitive and emotional terms, in cultures outside of the clinician's own. This promotes a lack of shared context to describe impairments or understand common task of everyday living in different cultures."*

3.5.4.5.3. Subcategory: Difficulties in the process of testing: This subcategory relates to some of the challenges met by respondents when testing clients from BME and EAL groups.

P43: "*The main challenge in my experience is where an individual has limited education and so the whole assessment process is alien and unfamiliar to them... this often leads to an invalid assessment"*

P20: "*General approach to how one acts in a testing environment. For example, overwhelmed by the experience, too anxious, approaches tests in a too relaxed manner and is slow."*

3.5.5. What Suggestions Do You Have For Developing Cross-Language And Cross-Cultural Neuropsychology Practice In The UK?

This category encapsulates key recommendations for developing cross-language and cross-cultural neuropsychology practice in the U.K. The categories include teaching and training, development of neuropsychological tests and norms, changes in the profession and developing awareness of culture and language.

3.5.5.1. Category: Teaching and training: The majority of respondents recognised that establishing better training, teaching and education was an important step in developing cross-language and cross-cultural neuropsychological practice.

P55: "*Organisation of accessible, affordable training which is regular and offered across the country."*

P9: *"Occasional CPD events, possibly organised through the BPS DCP/DoN to update clinicians on assessment issues in this area"*

Some respondents reported that cultural and linguistic variables should be integrated into postgraduate training and degree courses.

P70: *"Incorporate it in the curriculum of DClinPsy, QICN and the Bristol Neuropsychology MSc"*

P69: *"Teaching/training in psychometrics with different cultures/languages/educational abilities at an earlier stage of training (e.g. during the doctorate) would also help raise awareness."*

3.5.5.2. Category: Development of neuropsychological tests and norms: The development of appropriate neuropsychological instruments and norms for different client groups was a popular recommendation proposed by many respondents.

P53: *"We need appropriate local population-based norms for widely used batteries interpreted into other languages. The gold standard would be the development of culturally appropriate norms."*

P65: *"Tests which attempt to transcend culture, language and education and/or availability of different versions appropriate for different cultural and linguistic groups."*

Others highlighted that service users could contribute to the design and development of adequate norms.

P4: *"Consult with people of target cultures and ensure that they are involved in design & development of global reference psychometric norms across countries*

or world regions where similarities in education style, language and cultural values are broadly similar"

Some respondents recommended conducting research into the development and limitations of tests.

P1: *"Further consideration of bias and further research into the development of appropriate tests."*

P76: *"More research and discussion of the issues."*

3.5.5.3. Category: Changes in the profession: This category encapsulates a variety of suggestions towards improving the profession. These are highlighted as subthemes below.

3.5.5.3.1. Subcategory: Increasing diversity: A number of respondents acknowledged the importance of encouraging diversity in the staff workforce. Some reported that this could increase the provision of supervision from clinicians from different cultures.

P7: *"Clinical psychology is a profession for white middle-class English women - that has never changed in all the years I have been in the profession"*

P69: *"A database/forum for accessing neuropsychologists/clinical psychologists who are from different cultures who would be willing to be approached for supervision, advice and interpretation of results, and perhaps even to do the actual assessment if it is a private referral."*

P43: *"Perhaps this type of supervision should be provided more centrally i.e. in those areas with higher numbers of such groups where experience is going to be greater for such assessments. Would be tricky to apply this in more rural settings."*

3.5.5.3.2. Subcategory: Sharing information and research: A few respondents suggested disseminating research and sharing information and good practice. One respondent highlighted that different ideas could be shared through specialist groups and support networks.

P55: *"Promoting research and encouraging clinicians to share their approach and findings of cross-cultural neuropsychology practice."*

P76: *"Specialist groups and support networks, information sharing (books articles and internet resources), advice… publication of process and pathways."*

3.5.5.3.3. Subcategory: Involvement from professional bodies: Several respondents commented that professional bodies could adopt a key role to support the development of the profession.

P32: *"Bodies such as the BPS, BNS taking a lead of promoting this cause…they could develop guidelines alongside community leaders."*

P33: "*The DoN could also provide a bank of links to professionals/organisations/tests/info about practice from other countries to refer to"*

3.5.5.4. Category: Developing awareness of culture and language: This category represents the importance of developing greater awareness of culture and language in neuropsychology. Some respondents recommended developing an understanding of a client's cultural beliefs about health and disability and different multilingual groups.

P49: *"Explore the cultural understanding of and beliefs about healthcare/disability and understand the nature of any stigma that may be attached to both working with a psychologist and/or having cognitive or mental health problems."*

P40: *"Greater understanding and awareness of multilingual groups and subcultural variations in relation to test performance. Links across linguistics and neuropsychology services."*

3.6. Thematic Analysis

This section will outline the recurring themes that were abstracted from the qualitative content analysis. A thematic analysis was used to identify and extract the recurring themes from the data.

In total, six themes were identified (see figure 1). Most themes were 'data-driven' and derived from the data, such as, *a lack of training, awareness of culture, neuropsychological tests and norms, clinical interview, and interpreters*. One theme, *challenges of working across cultures*, was 'theory-driven' and corresponds closely to the survey questions.

The theme, a lack of training, highlights that there is an absence of adequate cross-cultural and cross-language neuropsychological training in the profession. It suggests that people are resorting to informal methods of learning as there is a lack of adequate training. Another theme related to the challenges of working across different cultures. Subthemes included a lack of opportunities to work with diverse clients and thus a lack of understanding of different cultural groups as well as the impact of cultural factors during testing. It was recognised that developing an awareness of culture could help to overcome some of the challenges highlighted above. This included exploring a client's cultural context and learning about cultures. A prominent theme was the use of neuropsychological tests and norms in assessment and associated disadvantages. A recommendation arising within this theme was the development of appropriate neuropsychological tests and norms for diverse client groups. The final theme, a clinical interview, is an assessment method endorsed by respondents to help them gather qualitative information about a client's background. It was felt by respondents that this method could offer detailed information about a client's abilities. These themes are discussed in further detail in the Discussion chapter.

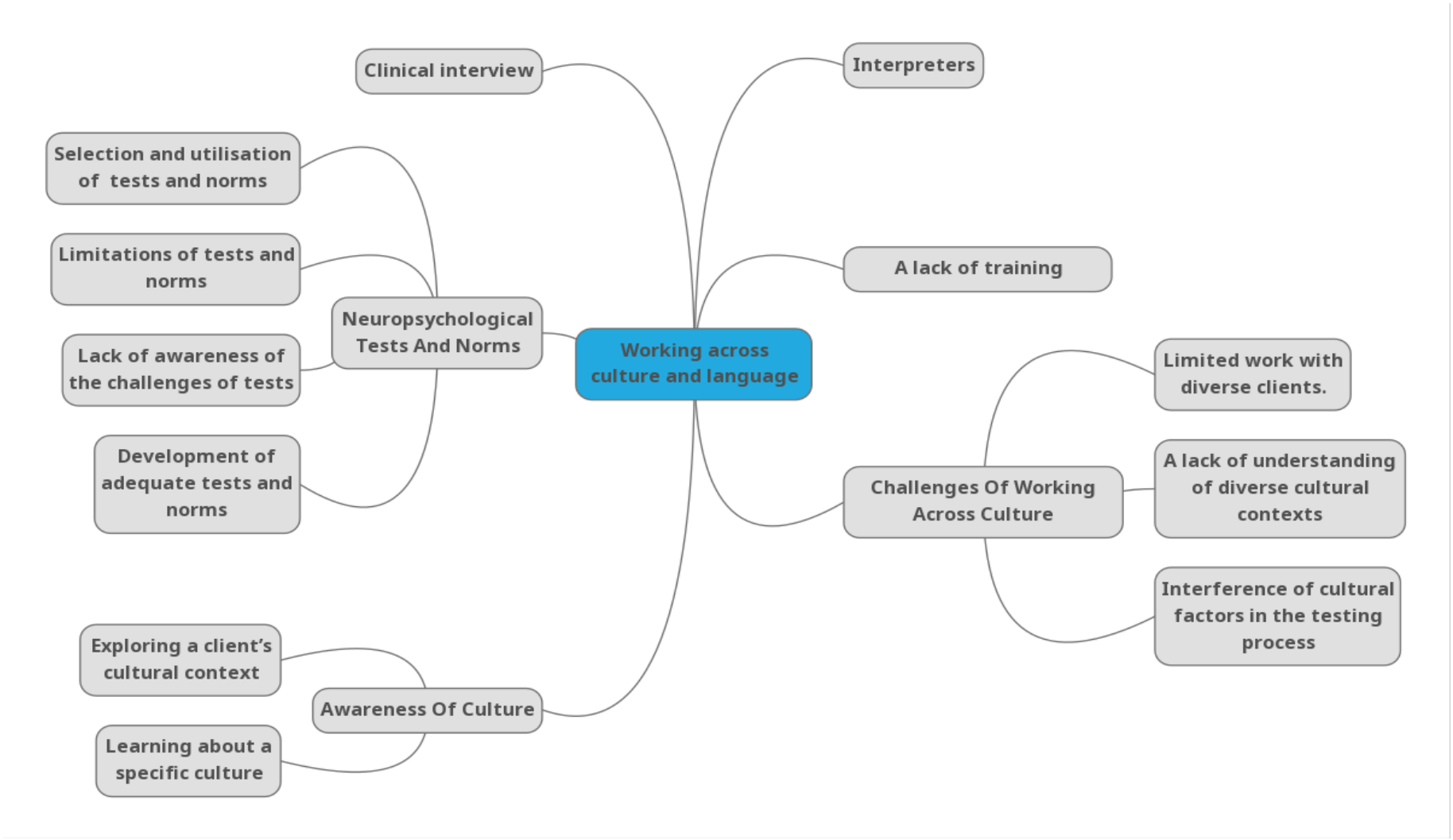

Figure 1: Themes relating to working across language and culture

4. DISCUSSION

4.1. Overview

This research aimed to explore the perspectives and experiences of neuropsychologists working with people from diverse cultural, linguistic and ethnic backgrounds. Here, a discussion of the key themes from the thematic analysis will be presented. This chapter will then review the findings of the present study, relate them to existing literature and the research questions and identify methodological limitations. It will conclude by highlighting implications for professional practice, offering recommendations for future research and considering researcher reflexivity.

4.2. Overarching themes

A discussion of the main themes derived from the qualitative data is presented below.

4.2.1. A Lack Of Training

This theme represents the lack of training in the profession. This was highlighted as a significant challenge in cross-cultural and cross-language neuropsychological practice. Whilst respondents reported learning about culture and language through formal training methods such as a doctorate in clinical psychology (DClinPsy) or attending workshops, it was recognised that this was limited. Respondents highlighted that other training they had participated in, was either too basic, outdated, or unhelpful.

It seemed that the lack of training prompted respondents to engage in self-directed teaching involving articles, books and research papers to inform their practice with clients. Engaging in supervision and consulting with colleagues were other informal practices that respondents reported using to help them explore cultural issues relating to their work with clients. This signifies that

respondents are making use of informal methods of learning to compensate for the absence of appropriate training.

Respondents suggested developing better teaching and training which could be organised through the DoN. It was suggested that the DoN could take a lead role by developing appropriate guidelines and providing information and resources on cross-cultural and cross-linguistic neuropsychological practice. Respondents recommended for cultural and linguistic variables to be integrated into formal training courses such as DClinPsy and MSc.

4.2.2. Challenges Of Working Across Culture

This theme captures the challenges faced by respondents when working across culture. A subtheme related to the limited work with diverse clients. Respondents reported that the less exposure they had to clients from BME and EAL backgrounds, the less skilled and competent they felt in conducting an assessment. It was also mentioned that there was a lack of opportunities for cross-cultural and cross-language work. This represents a 'no-win situation' where respondents are unable to develop their experience and competence in the area without appropriate opportunities or exposure to clients from BME and EAL backgrounds.

Another challenge highlighted the lack of understanding of diverse cultural and linguistic contexts. Respondents commented that a wide range of cultural and linguistic diversity in the clinical population could lead to difficulties in understanding how differences impact assessment. However, it was acknowledged by respondents that the use of a western-model of neuropsychology within services could limit understanding of alternative cultural contexts or behaviours by encouraging culture-centrism. For example, the rehabilitation system is dependent on western values, beliefs and attitudes which may not suit individuals from different backgrounds.

A last subtheme corresponded to the interference of cultural factors in the testing process. Respondents noted that clients' attitudes and familiarity with the testing process can differ and reflect culture-specific values. For example, one

respondent commented that elements of the assessment can seem unfamiliar to an individual with limited education. This can have an impact on the client's overall test performance and outcome of assessment. The theme below represents how respondents dealt with these challenges.

4.2.3. Awareness Of Culture

A prevalent theme related to the awareness of culture. It appeared that respondents became aware of culture as an issue following the challenges of working across cultures as highlighted above. In addition, some respondents mentioned that they were mindful of cultural factors in situations where they felt uncertain about the role and impact of culture on assessment or diagnosis. The three subthemes below, highlighted the ways in which respondents developed their cultural awareness.

Respondents reported exploring a client's cultural context including beliefs surrounding neurological disability or mental health diagnosis. It was recognised that this could help respondents discern the difference between a neurological impairment versus a cultural norm or expectation.

A subtheme focused on learning about a specific culture. Respondents reported engaging in self-directed learning and research. The use of a self-directed learning approach is a recurring theme which perhaps, signifies that clinicians would like to improve their knowledge on other cultures but are potentially faced with a lack of opportunities to do this. There was a trend in the data for senior staff to prefer self-directed study. Furthermore, respondents stated that they attempted to learn about a culture by involving both the client and family in the testing process. Respondents gave examples of asking about the importance of religion and culture to a client's recovery and by exploring the client's previous experiences of formal assessment. This was considered an important process to increase engagement and incorporate cultural awareness into practice. Other respondents stated learning about a culture through consulting with team members and more senior colleagues. For some, this involved carrying out joint assessment work.

4.2.4. Neuropsychological Tests And Norms

This theme incorporates the selection and utilisation of neuropsychological tests and norms within cross-cultural and cross-linguistic practice and the associated drawbacks. There was an acknowledgment that the employment of special approaches was necessary in the assessment of clients from different cultural and linguistic backgrounds, including the adaptation and translation of test materials and procedures. The majority of respondents indicated a preference for culture-free tests for this client group.

The limitations of neuropsychological tests and norms was a recurring theme that appeared across responses to many questions. One limitation was the lack of culturally and linguistically appropriate neuropsychological tests and norms; leading some respondents to state that they would either rely on a clinical interview or the use of translated materials or unmodified tests. Another limitation related to the limited validity and reliability of tests which was perceived as having a significant impact on the interpretation of test results and outcome of the assessment. Respondents reported avoiding tests and norms that were considered unsuitable for a client's background. It was emphasised that the interpretation of test results should be approached carefully and communicated with due caution in the report.

There was also a strong recognition that there is a lack of awareness of the challenges of neuropsychological tests for people from diverse backgrounds. One respondent suggested that this could be due to a lack of opportunities and experience in cross-cultural and cross-language neuropsychological practice.

This leads onto another prominent and recurring subtheme: a recommendation for the development of adequate neuropsychological tests and norms for people from diverse backgrounds. Respondents felt that the production of appropriate tests and norms for different cultural and linguistic groups was vital. Several suggestions were offered such as, consulting with service users on the design and development of norms and increasing research to explore the limitations and potential development of tests.

4.2.5. Clinical Interview

This theme highlights respondents' views on the importance of conducting a comprehensive clinical interview. The clinical interview focused on building a broader picture of a client's abilities by gathering mainly qualitative information on a client's background, occupation, qualifications, cultural beliefs, language/s spoken etc. This was used to enhance respondents' awareness and understanding of cultural and language issues relating to clients and therefore, their own cultural competence

Respondents reported relying more on a clinical interview to develop a broader picture of a client's abilities; suggesting that for respondents, a clinical interview has greater importance than other assessment procedures. A recommendation emerging from this therefore, was that a qualitative approach can offer more detailed information about a client's background and functioning and thus serves as a potential alternative to some of the challenges associated with the use of neuropsychological measures.

4.2.6. Interpreters

This theme encapsulates the use of interpreters to facilitate the assessment of clients from BME and EAL backgrounds. Respondents stated that a level of preparation and briefing with the interpreter was essential. Respondents reported discussing elements of the assessment with the interpreter prior to testing such as asking questions about how a language works with an interpreter to ensure that they were aware of the importance of close translation of key words and phrases within the assessment.

However, respondents reported many challenges with using interpreters. Some acknowledged that there was a lack of availability of skilled interpreters, others highlighted that it was often difficult to work with interpreters of varying ability. It was felt by respondents that interpreters had a limited awareness of neuropsychological assessment issues which could hamper an accurate translation. A recommendation was therefore, to use careful planning and preparation and consider several factors such as the interpreter's competence and their understanding of neuropsychological concepts and issues.

4.3. How do neuropsychologists' approach an assessment in the context of the client's linguistic and cultural background?

This section will present findings from the quantitative and qualitative data to explore the different ways in which clinicians plan and undertake neuropsychological assessment when taking cultural and language factors into account. The first half of this section will present findings relating to the employment of neuropsychological tests and norms. The second half of the section will highlight the use of a clinical interview and awareness of cultural factors in assessment.

4.3.1. The employment of neuropsychological tests and norms

The quantitative data revealed that the Weschler Scales were by far the most frequently utilised instruments in working across language and culture, followed by the Delis-Kaplan Executive Function System (DKEFS). Among the culture-free tests that are available, the Wescher non-verbal scales were prominent. In comparison, small numbers of respondents endorsed other culture-free tests such as the Leiter-3, Comprehensive Test of Nonverbal Intelligence (CTONI) or DAS Naglieri. Furthermore, few respondents reported the use of tests that have been produced in several languages and are widely available on the internet, including the translated Montreal Cognitive Assessment (MoCA), translated Addenbrooke Cognitive Assessment (ACE-III) and Rowland Universal Dementia Assessment Scale (RUDAS). The minimal use of the tests is surprising given that they are more likely to be used across memory clinics and dementia services and that a fairly large proportion of respondents reported working with these patient groups. In addition, many respondents reported using translated or culturally adapted versions of neuropsychological tests or bespoke or local tests and norms.

This finding was also reflected in the qualitative data which showed that the majority of respondents endorsed the use of culture-free tests within their practice. Respondents employed special approaches to facilitate the assessment process, including the translation of test materials and the use of interpreters. Several components were considered essential in the assessment of language,

including a client's pre-morbid language skills, current level of proficiency in the English language and their preferred language. However, there was a gap between the quantitative and qualitative data as the findings showed that the Weschler Adult Intelligence Scales (WAIS) was the most frequently used neuropsychological instrument, yet respondents strongly acknowledged the limitations of neuropsychological tests and expressed caution in using tests and norms. This difference in practice and perspective may imply that clinicians perceive aspects of the WAIS to be culture-fair, such as the block design and matrix reasoning subtests or that they use the tests in any case but interpret with caution.

Examination of the data reveals some interesting findings. Firstly, the popularity of the WAIS has been observed in general neuropsychological test surveys across different countries (Echemendia & Harris, 2004; Hartlage and Telzrow, 1980; Butler et al., 1991; Camara et al., 2000; Rabin et al., 2005; Sullivan & Bowden, 1997; Tsoi & Sundberg, 1989; Lenherr & Gerhand, 2012). Echemendia and Harris (2004) suggested that this highlights the ease and confidence that neuropsychologists have in using the WAIS. Lenherr and Gerhand's study (2012) – the only survey in the U.K. that explored neuropsychological test use among DoN members – found that the graded naming test (80%), pyramids and palm trees test (51%), tokens test (37%) and modified token test (34%) were highly endorsed tests of language function. They proposed that there is a trend for clinicians to use well-established neuropsychological tests that have undergone extensive standardisation. However, the fact that the vast majority use a western established cognitive test, presumably unmodified with people from diverse backgrounds is problematic and raises the question: to what extent is a client's linguistic ability and cultural context taken into account in assessment.

Secondly, respondents' awareness of the limitations of tests conforms that there is an absence of appropriate neuropsychological instruments as well as limited guidance on the selection and adaptation of tests for use with BME and EAL groups. Having greater appreciation of the limitations of neuropsychological tests can prompt a clinician to interpret test results with caution and seek other alternatives if necessary (Wong & Fujii, 2004; Scott, 2002). Such alternatives in

the current study may have included special approaches, culture-fair tests and bespoke norms. It is possible that these were utilised by respondents in response to a lack of suitable tests and normative data for clients from different backgrounds. However, weaknesses have been identified with several of these approaches. For example, many “culture-fair” tests are influenced by cultural factors as they involve the use of Western-based cognitive skills and strategies (Anastasi, 1988; Irvine & Berry, 1988; Rosselli & Ardila, 2003; Wong, 2000; Wong et al., 2000, Wong, 2006). Similarly, the translation of individual test items can diverge from standardized procedures thereby affecting the validity of the measure (Olson & Jacobson, 2014). The employment of interpreters was another common approach used by respondents, however, there are many interpreters who do not fit the necessary criteria for a neuropsychological assessment which can affect the overall validity of the assessment (Iverson, 2000; Hernandez-Cardenache et al., 2016). Although the data showed that clinicians engage in a variety of assessment practices, some practices are ambiguous and must be approached with caution.

Some of these findings are in line with Elbulok-Charcape et al. (2014) and Arango-Lasprilla et al’s (2016) study. Both studies revealed that there was a multiplicity of practices and special methods that respondents used to assess and interpret cognitive scores of people from ethnic minorities (refer to Introduction for the full study).

4.3.2. The use of a clinical interview and incorporation of cultural factors

The second set of findings relating to assessment practices showed that respondents carried out a comprehensive clinical interview to gather a full picture of a client and their everyday functioning and also to inform cross-cultural approach. The analysis showed that various factors were incorporated in the clinical interview, including an exploration of a client’s cultural beliefs, linguistic abilities, educational information, occupational history, etc. This was considered as one way of enhancing cultural awareness and competence. Other ways of incorporating cultural awareness included, involving the client and family in the assessment, consulting with colleagues and carrying out research on culture.

A qualitative approach was considered as highly useful by respondents and appeared to have greater importance than other assessment procedures, such as using neuropsychological tests. It is possible that respondents may feel more confident in using a qualitative approach because of the uncertainty surrounding the appropriateness of neuropsychological measures for clients from BME and EAL populations. Wong and colleagues (2000) pointed out that a good clinical interview is particularly crucial when the client is from a culturally dissimilar background as the analysis of cultural issues can provide vital information to the clinician as well as signify respect towards the client. This supports Fujii et al's (2002) and Greenfield (1997) recommendation that clinicians should utilise a multimethod approach by exploring and integrating information from the client's entire profile, such as their background information, cultural-specific concepts, neuropsychological test results etc. This can reduce the likelihood of producing inaccurate conclusions and cultural misunderstandings (Fujii et al., 2002).

4.4. What are neuropsychologists' experiences of working across language and culture?

In the following section, an analysis of the data will be presented and explored in relation to clinicians' experiences and perspectives on working across language and culture in neuropsychology.

4.4.1. Proportion of caseload and perceived competence

The findings of the current study showed that respondents were less likely to have a higher proportion of caseload involving clients with no or limited English and those from non-Western European cultures. The data showed that cultural and language issues are separable and that cultural issues were more prominent for respondents than language issues. The majority of respondents felt either 'moderately competent' (34.8%) or 'slightly competent' (24.2%) in administering neuropsychological assessments with clients from diverse linguistic backgrounds. Interestingly, the findings imply that the less exposure clinicians have to people from BME and EAL backgrounds, the less competent they feel in conducting an assessment. Furthermore, respondents reported limited opportunities for cross-cultural and cross-language work which limits exposure to clients from BME and

EAL groups and therefore reduces competence and experience in this area. This represents a 'catch-22 situation' placing clinicians in a difficult dilemma.

There may be several reasons for this. Respondents working in less ethnically and culturally diverse parts of the UK are less likely to have opportunities to work with clients from different backgrounds. Furthermore, a lack of appropriate training, teaching and supervision may also contribute to clinicians' feelings of incompetence. From a service perspective, the lack of exposure to dissimilar clients may highlight an underutilization of neuropsychological services and inequalities in service provision. This may relate to language difficulties, varying cultural beliefs on illness and stigma towards psychology services and a lack of knowledge or information on services and resources for treatment (Scott, 2002).

The findings also highlighted that respondents perceive cultural issues and language issues as different. The qualitative data supported the quantitative finding that cultural issues appeared to be a greater problem for respondents than language issues. For example, there was more emphasis on themes relating to culture than language, particularly the challenges of working across culture and the importance of cultural awareness. In addition, there seemed to be more established methods and clarity in assessing language whereas this did not appear to be the case for culture *(see section 3.5.2.1 and 3.5.2.2).*

Overall, these findings are supported by Echemendia et al's study (1997) which highlighted a link between perceived competence to work with an ethnically diverse client group and the provision of neuropsychological services to this group. The authors suggested that as the level of self-rated competence increased, the number of Hispanic clients who were treated also increased. They concluded that a substantial proportion of people do not feel competent or prepared to work with clients from dissimilar backgrounds which alludes to some of the findings raised by this study.

4.4.2. Challenges of working across language and culture

The results indicated that most of the challenges of working across language and culture were perceived to be equally prominent. This section will highlight findings

on some of the greater issues in working with people from culturally, linguistically and ethnically diverse backgrounds as well as within the wider profession.

4.4.2.1. Neuropsychological tests and norms: The quantitative data showed that a huge majority (87.2%) of respondents felt that the lack of normative data available for a test matching a client's cultural context was the greatest challenge to working across language and culture. It is well-established that the majority of neuropsychological instruments have been developed and standardized mainly on English-speaking individuals from European-American backgrounds (Fujii & Wong, 2005). Neuropsychological instruments that reflect the dominant culture may be inappropriate for use with individuals who do not fit the standardization sample (Rabin et al., 2019). A proportion of the sample complained about the lack of available tests and procedures that are appropriate to a client's cultural background and their preferred language. These findings were also reflected in the qualitative analysis, which revealed that the shortage of suitable neuropsychological tests and norms was considered a key challenge. Respondents also reported that there was a general lack of awareness and understanding of the limitations of tests for clients from different backgrounds. This study adheres to findings from Elbulok-Charcape et al's (2014) study (see Introduction).

These findings signify that the reliable and valid assessment is an important priority for clinicians and the wider profession. This has a number of direct implications for clinical practice. Clinicians are assigned the difficult task of having to determine the impact and extent to which different variables influence test scores. The absence of appropriate norms and tests can impede their ability to conduct an adequate assessment and interpretation. This can potentially lead to negative consequences for BME and EAL groups, including a misdiagnosis and refusal of clinical services or inappropriate treatment (Olson & Jacobson, 2014). The disparity between the demand to develop more culturally and linguistically appropriate neuropsychological instruments and the availability of such tools illustrates that neuropsychological practice needs development in this area.

4.4.2.2. Interpreter use: Quantitative results of the study confirmed that the next biggest challenge perceived by respondents was the administration of tests and procedures via an interpreter in a client's preferred language (85.9%). A slightly smaller portion of the sample endorsed the challenge of administering tests and procedures via an interpreter appropriate to a client's cultural background (78.2%). Other cross-language challenges included working with clients with either no or limited facility in the English language (79.5% and 78.2% respectively) and the examiner administering tests and procedures in a language other than English (30.8%). These findings were congruent with the qualitative results which highlighted that there were many challenges associated with using an interpreter. Some challenges included, a lack of available skilled interpreters in the profession, difficulties in working with interpreters of varying abilities and those with a limited awareness of neuropsychological assessment issues. It was felt that such issues could impede an accurate translation which could have an overall impact on the neuropsychological assessment. Similar concerns have been raised in literature. It has been noted that although interpreters are able to communicate in both languages, cultural values and norms may differ, potentially leading to distortions in translation (Wong et al., 2000). Ardila et al. (2002) pointed out that a disparity between the client's linguistic abilities and those of the interpreter can lead to inaccuracies in diagnosis, interpretation, and evaluation and affect the overall validity of the assessment.

4.4.2.3. A lack of diversity and training: Qualitative data revealed a number of perceived challenges concerning the profession of neuropsychology. The first challenge related to the lack of cultural, ethnic and linguistic diversity in the workforce. Within this theme, respondents felt that the shortage of staff from BME and EAL backgrounds in the profession could lead to a limited understanding of diversity issues and prohibit clients from receiving assessments in their language as well as restricting research and development within the field. Similar challenges have been reported in wider literature. For example, in the U.S, Elbulok-Charcape et al. (2014) found that the greatest challenges in assessing ethnic minorities were difficulties in finding appropriate referral sources and consulting colleagues.

The lack of teaching and training on cross-cultural neuropsychology within the profession was another challenge raised by respondents. It was reported that this issue could limit clinician's cultural sensitivity and hinder the development of appropriate guidelines to inform practice. A previous study found that although U.S neuropsychologists provide services to Hispanic individuals, most have little or no training to work with this client group (Echemendia et al., 1997). Furthermore, most graduate training programmes in neuropsychology do not incorporate teaching on cultural issues which indicates that neuropsychology falls behind other divisions of psychology in this area (Echemendia et al. 1997). It is apparent from these results that a lack of cross-cultural teaching and training is a significant challenge that affects the discipline of neuropsychology in the U.K as well as in other countries.

Possibly, clinical neuropsychology is a fairly new specialty within psychology, and it is likely that there has been limited time and effort to improve neuropsychological tests and enhance relevant training specific to cultural and linguistic diversity within the field. Overall, these findings indicate that there is inadequate knowledge within the profession to match the needs of a growing BME and EAL population (Puente et al., 2013).

4.4.2.4. Cross-cultural challenges: An additional theme highlighted in this study related to the interference of cultural factors in the testing process. This included difficulties in applying a western-based model of neuropsychology. It was acknowledged that current models of neuropsychology which reflect Western values could lead to a lack of understanding and incorporation of different worldviews of illness and wellbeing. Another issue within this theme corresponded to clients' attitudes towards testing and their unfamiliarity with the nature of testing. It has been suggested that people from diverse ethnic, cultural and linguistic backgrounds are generally not as "test-wise" as their White equivalents (Manly et al., 2002). Behaviours and modes of communication of test takers may differ from the intended client group due to a reflection of culture-specific values and educational differences (Greenfield, 1997). Such differences can have a huge impact on test performance and overall outcome of the assessment.

There are several reasons why the role of cultural and linguistic factors has been minimized in neuropsychology. As previously mentioned, clinical neuropsychology is a relatively new practice, hence it is possible that most efforts have been directed towards developing mainstream neuropsychology, such as the core training and education and establishing the effects of more influential and accessible variables including age or education (Ardila, Rosselli & Puente, 1994). Furthermore, as highlighted in the Introduction, concepts such as culture, ethnicity, race and language are complex and multifaceted and thus, difficult to define and measure in neuropsychological testing. Hence, the development of valid and reliable culturally and linguistically appropriate neuropsychological tests and norms will take many years of research. Finally, there may be an underlying belief that brain functions and deficits are unaffected by cultural influence (Echemendia et al., 1997).

4.5. What are some of the recommendations in developing cross-cultural and cross-linguistic neuropsychological practice in the UK?

The most significant recommendations in developing cross-cultural and cross-linguistic neuropsychology will be discussed below.

4.5.1. Teaching and training

This study found that teaching and training was highlighted as a key recommendation in enhancing cross-language and cross-cultural neuropsychological practice in the U.K. This section will consider the different modes of training that were found useful in working across language and culture.

Educational and teaching programmes were the most frequently reported among existing formal training methods, with the majority having either completed a doctorate in clinical psychology or a post-graduate diploma (PGDip) in clinical neuropsychology. It is important to note that the vast majority of respondents (60.3%) had not completed the PGDip in clinical neuropsychology, which poses a disadvantage for most clinicians by limiting their access to information and teaching on language and culture. CPD events and workshops were also a common training approach, however, it was noted that this was limited.

Respondents reported that there was a lack of training opportunities while others felt that current training models were too basic or outdated. It is possible that such challenges may have encouraged people to resort to informal methods of teaching, such as self-education or clinical supervision. For example, respondents reported that using clinical supervision and MDT work helped them to explore cultural issues to inform their practice with clients. Others referred to a self-directed teaching approach drawing on books and research articles to engage with language and culture. These challenges highlight that clinicians would like to improve their knowledge on other cultures and languages but are faced with a lack of opportunities to achieve this.

It was recommended that more training opportunities that are accessible and affordable, need to be available for clinicians across the country. Respondents also suggested that cross-cultural and cross-language neuropsychological education should be integrated into the curriculum of postgraduate training courses such as DClinPsy, QICN and MSc.

Similar findings and concerns regarding the lack of training in cross-cultural neuropsychological practice were raised by Elbulok-Charcape and colleagues (2014) in Chapter 1. A review of the literature indicated that many clinicians' lack in-depth and comprehensive education and training on how cultural variables can affect neuropsychological assessment, interpretation, and evaluation (Brickman et al., 2006). These findings lead to the conclusion that more meaningful changes need to be made to the curriculum of neuropsychology courses, particularly as there seems to be a greater focus on formal training and education in learning about language and culture. Wong et al. (2000) suggested that the integration of cross-cultural issues should also be a part of clinical skills training, supplemented by case discussion and supervision by clinicians who are competent in the field. This can help clinicians to acquire skills to be mindful of the effect of variables on test outcomes and handle them more effectively in practice (Wong et al., 2000). Proctor and Simpson (2016) suggested generating a course model that would increase cross-cultural competencies and integrating diversity issues into examination and coursework (Rabin et al., 2019; Proctor & Simpson, 2016). They also highlighted the importance of developing clinician's critical thinking skills to

help them to consider the impact that culture and other factors have on one's presentation and cognitive functioning (Rabin et al., 2019).

4.5.2. Development of neuropsychological instruments and research

Another key recommendation proposed by respondents was the need to develop culturally and linguistically appropriate neuropsychological instruments and normative data for different groups of people. This is unsurprising given that a lack of adequate tests and norms was perceived to be a significant challenge in working across language and culture. It was suggested that service user input could help contribute to the design and development of relevant psychometric instruments and norms. Respondents also made the recommendation to increase research on the limitations of current neuropsychological instruments as well as the development of new tests and norms.

This recommendation is congruent with Nabors, Evans and Strickland's (2000) research which indicated that one of the most urgent demands for neuropsychologists is the development of appropriate norms to be able to assess diverse populations. This was echoed by Ferraro & McDonald (2005) who reiterated the importance in establishing culturally sensitive neuropsychological tools. This study has supported wider literature which has emphasized that investigation should focus on cultural, ethnic and linguistic issues, including the reliability and validity of neuropsychological assessments across minority populations (Elbulok-Charcape et al., 2014; Rabin et al., 2019). This would provide an insight into how current neuropsychological assessment models relate to different client groups and help improve guidance and clarification on the evaluation of cognitive ability (Mindt et al., 2010). A number of solutions to this recommendation have been proposed, including the development and use of specific group-based norms, culture-free approaches and culture-specific tests. A review of this was outlined in chapter 1.

4.5.3. Making changes within the profession

A recommendation in this study was to improve diversity and information sharing in the profession. It was suggested that training a greater number of psychologists from minority backgrounds would increase the number of

neuropsychologists that are able to provide supervision and consultation to others on diverse issues. Respondents highlighted that sharing ideas, research and good practice in the profession should be promoted through specialist groups and support networks. This is considered a crucial step in achieving cultural competence and building a more skilled workforce.

Greater representation of professionals from ethnic and linguistic minorities can defy the monocultural stance that is inherent in the discipline and help identify and attend to the needs and disparities of a multicultural society (Mindt et al, 2010; Wong et al., 2000). This is likely to broaden the profession's approach to assessment by eliciting new perspectives to theory and practice (Hill-Briggs et al, 2004; Elbulok-Charcape et al., 2014). It is also essential to strengthen evidence-based practice by prioritising the involvement of clinicians from BME and EAL backgrounds in neuropsychological research. Elbulok-Charcape and colleagues (2014) proposed strategies to enhance diversity in the field including, exposing neuropsychology to students at an early stage of their career, offering work opportunities with dissimilar clients and providing ongoing support by qualified neuropsychologists acting as mentors to students (Rabin et al., 2019; Elbulok-Charcape et al., 2014; Mindt et al., 2010).

4.5.4. Increasing cultural awareness

Respondents stated that developing greater appreciation and awareness of cultural and linguistic issues in neuropsychology was an important step in enabling clinicians to work more effectively with different populations. This involved an exploration of a client's cultural beliefs and learning about a specific culture through research, involving a client and family in the assessment and consulting with colleagues. This can have numerous advantages for clinical practice. Firstly, greater cultural awareness can facilitate a clinician to integrate a client's worldviews into treatment, enhancing their ability to meet the diverse needs of people (Cantlon & Brannon, 2006). Secondly, increased familiarity with a client's specific cultural, ethnic, linguistic and educational background can improve a clinician's understanding on how these complex factors might operate together and contribute to the individual's presentation and everyday functioning

(Olson & Jacobson, 2014; Wajman et al., 2015). Such influences are likely to enhance the therapeutic alliance (Dudley et al., 2014).

Some ways to achieve cultural awareness and competence include, reflecting on interactions with culturally dissimilar clients, having an openness to individual differences and developing a critical awareness of one's own values and biases (Roysircar, 2004). Seeking to enhance cultural awareness in neuropsychological practice is a continuous yet important process that necessitates constant commitment (Olson & Jacobson, 2014; Burt et al., 2017).

4.6. Study Strengths and Limitations

This study attracted a large sample which allowed for more detailed analyses and increased the generalizability of results. There was a good proportion of respondents from a range of professional and ethnically diverse backgrounds. Hence, the data is likely to present a variety of perspectives on the topic area and highlight the needs and experiences of people from some ethnic minority groups. Overall, the study sample appeared to be representative of clinical neuropsychologists in the U.K based on DoN membership, although there was a bias towards Greater London and the South East of England. However, a random or stratified sample had not been used and therefore, the current sample is likely to represent clinicians who have a dedication to clinical practice and interest in cross-cultural issues. Furthermore, the study is likely to have attracted respondents with access to the internet and a readiness to complete the questionnaire as an online survey platform was used to administer and distribute the questionnaire. In general, online surveys tend to produce lower response rates than postal surveys (Shih & Fan, 2008).

A mixed-method approach in the study provided flexibility in permitting the investigation of trends while also reflecting the participant experience of cross-cultural and cross-language neuropsychology. The rich qualitative data offered an in-depth picture of respondents' views and clinical practices which was congruent with findings from the quantitative data. However, the use of a semi-structured questionnaire led to a disadvantage in that there were many areas and insightful comments that could have benefitted from further exploration and elaboration. The

use of some close-ended questions, such as asking respondents to rate their competence, may have restricted their ability to express their feelings and judgement on the topic. It was also difficult to determine the validity of respondents' answers as the survey questions may have been perceived differently by respondents, bringing diverse interpretations of questions. For example, it is possible that respondents may not have been able to assess themselves or aspects of their work accurately, such as estimations of their own competence levels or may have responded in a socially acceptable way, perhaps due to a lack of experience or knowledge on cross-cultural and cross-linguistic issues in neuropsychology. Lastly, the number of questions relating to language and culture were restricted due to time and survey length constraints. Some areas for further investigation include, the quality of cross-cultural neuropsychological training, justification for choice of tests and instruments, more detailed scoring procedures and elaboration of the challenges faced at work.

The critical realist position specifies that researchers bring their own experiences to understand the data and this impacts on how conclusions are drawn (Willig, 2013). Therefore, conclusions were shaped by my interpretations as I analysed the data. I had increased awareness of this issue, particularly during the analysis of open-ended questions as there were a few responses that were unclear or may have had multiple meanings. My reflections were recorded throughout the process of the research in order to consider biases that were likely to influence the way the data had been understood. Moreover, analysis of the themes and findings were examined by the thesis supervisor.

4.7. Implications and Recommendations

The results of this study have strengthened and contributed to a limited evidence base in cross-cultural and cross-linguistic neuropsychology. It is hoped that this study will prompt further interest and research to improve neuropsychological testing for different groups. A useful starting point is to work towards developing a deeper understanding of the interaction of culture, ethnicity and language and their influence in neuropsychological testing. Further steps should be taken towards increasing understanding of the clinical needs of people from minority

populations. Initiatives can include exploring the perspectives of service users on neuropsychological assessment and services and endorsing a qualitative approach to gather in-depth views of clinicians from BME backgrounds. Results of such inquiry may offer solutions for improving the approach to neuropsychological assessment and the provision of culturally appropriate neuropsychological services. There is a need to continue to monitor the demographics of clinicians and trends within the profession which can be used to establish benchmarks for future comparisons. This can provide the basis for identifying the needs and requirements of clinicians' and the wider profession. To achieve these goals, professional organisations and grant funding bodies must be encouraged to prioritise and support cross-cultural neuropsychological research and its development by facilitating research resources and directing funds towards projects. It would also be helpful to collaborate with clinical and academic researchers to implement research and theory into clinical neuropsychological practice and promote the dissemination of relevant research findings to multiple audiences.

This study also highlighted some of the most pertinent issues faced by clinicians in neuropsychological practice, such as a lack of in-depth training and education in cross-cultural and cross-linguistic neuropsychology. The findings implied that clinicians do not have the appropriate resources, skills, and knowledge to be able to adequately assess and evaluate the impact of culture and language on neuropsychological performance. These results underscore the need to improve training and education within the field. It is recommended for training courses and educational programmes, such as the postgraduate qualification in neuropsychology, to integrate cultural and language issues into their teaching content. Trainees should be encouraged to develop sensitive assessment skills and an awareness of the limitations of neuropsychological tests and norms when working with diverse populations. The development of cross-cultural competencies can be achieved through exam questions and coursework relating to culture and neuropsychology and the provision of work opportunities in diverse clinical settings. This can help to increase neuropsychologists' understanding of the effects of culture and language on assessment and interpretation.

It is also important to promote cultural competence at an individual level. It is recommended for clinicians to reflect on their own cultural identity, values and beliefs to help increase their awareness on how this may influence their understanding of a client's cultural context and their neuropsychological findings. Some strategies to develop cultural competencies include, keeping abreast of relevant research and assessment issues and seeking educational and consultation opportunities.

Finally, there are limited guidelines on neuropsychological practice with ethnic and linguistic minority populations in the U.K. This is necessary to achieve quality and consistency in neuropsychological assessments and evaluations. Guidelines should offer instructions and suggestions for the use of valid neuropsychological instruments for evaluating culturally and linguistically diverse clients, test scoring procedures, adequate interpretation and evaluation, the use of interpreters and a clinical interview. The implementation of these guidelines should be directed by leaders in neuropsychological research and practice with minority groups.

Overall, a profound shift in the way we conduct neuropsychological research, assessment and practice including an evaluation of our current position as a profession is required if we wish to establish a truly developed cross-cultural and cross-linguistic neuropsychology profession in the UK.

4.8. Critical Review And Evaluation Of Research

This section will present a critical evaluation of the study in line with Yardley's (2000) evaluative criteria for qualitative approaches.

4.8.1. Sensitivity to context

Yardley (2000) highlighted that good qualitative research is contextualised according to relevant literature and that the researcher will need to show sensitivity to the socio-cultural context of the research. This principle was adhered to by presenting a review of relevant literature in Chapter 1 on the role of culture, language and ethnicity in neuropsychology but less on the perspectives of neuropsychologists in working with these issues which was used to inform the

research questions. In addition, the findings of the study were discussed in connection with previous literature. The socio-cultural positions of the researcher and context of the study are outlined in Chapter 2 and the limitations section in the current chapter.

4.8.2. Commitment, Rigour, Transparency and Coherence

This broad principle is significant in determining validity in qualitative methods (Yardley, 2008). It refers to commitment to the subject area and the process of analysis in addition to the researcher's engagement in the research (Yardley, 2008). Coherence relates to whether the research aims, methodology and methods are appropriate, and transparency is shown through the consistency of the process of data collection and analysis (Yardley, 2008).

This principle was addressed through an in-depth engagement with relevant literature and the data to confirm a detailed analysis. A clear description of the approach of data collection and analysis were outlined in Chapter 2. The transparency of the analysis was achieved by providing extracts with the content analysis in Chapter 3. Excerpts from the coding was included in the appendices. To adhere to reliable content analysis, I observed Elo and Kyngas's (2014) checklist for evaluating trustworthiness of the content analysis data. I attempted to develop competence in Thematic Analysis by reading appropriate articles and discussing and reviewing initial codes and themes with my supervisor. Supervision encouraged the development of recurring and well-connected themes rather than purely descriptive ones. Throughout the study, I engaged in reflexivity to consider potential biases or the ways in which I may have shaped the process of the research.

4.8.3. Impact and Importance

The impact and importance of this study in generating new insights in the area of cross-cultural and cross-language neuropsychology has been discussed in regards to the potential implications for clients from BME and EAL backgrounds, neuropsychologists and clinicians working in neuropsychology settings and clinical neuropsychology as a profession.

4.9.4. Reflections on Research

Reflexivity was addressed in chapter two, where I considered parts of my experiences and context that could have shaped my engagement with the research. Further reflections are highlighted below.

I was aware of how my own experiences and ethnic background may have shaped the data analysis through unconsciously seeking out specific themes and ideas. For example, I found myself being drawn to accounts that resonated with the experiences I had come across on a personal and professional level. The use of a reflective diary enabled me to adopt a questioning approach by reflecting on some of my pre-conceived ideas and biases to try and uphold as much neutrality as possible.

Furthermore, whilst I was prepared for some of the difficulties in utilising a mixed methods design, I did not anticipate the challenges that would arise in being able to accurately portray the quantitative and qualitative aspects of the analysis. This was particularly with regard to the qualitative responses and determining how to represent multiple perspectives in a coherent way. The data analysis highlighted some complexities, including neuropsychological terminology, instruments, and procedures that I was unfamiliar with and at times, felt uncertain on how to approach this. This may relate to my status as a trainee clinical psychologist where I had limited knowledge in the area compared to qualified clinicians in the study which may have influenced my confidence in interpreting the data. Having awareness of this issue and consulting my supervisor for guidance enabled me to monitor this process and question my findings and interpretations to ensure that they were supported in the original transcripts. I reflected upon how the data interpretation and outcome could have been different had I adopted a different study approach or conducted the research as a clinician with significant experience and knowledge of neuropsychological assessment or working with diverse client groups. For example, the use of an interview may have allowed me to explore specific areas of respondents' accounts further allowing a deeper understanding of some of the issues presented.

Lastly, this research process has been a valuable learning experience. As a researcher, I have enhanced my skills in literature searching, recruitment and data analysis. I have reflected on my own clinical practice which has encouraged me to continue to find ways to work sensitively, ethically and competently.

5. CONCLUSION

The study explored the perspectives and experiences of neuropsychologists working with culturally, ethnically and linguistically diverse populations. The aim was to contribute to a limited evidence base in this area. The study sample was representative of clinical neuropsychologists in the U.K based on DoN membership and there was good proportion of respondents from BME backgrounds. The data provided a snapshot of the status and trends in the field of neuropsychology.

Respondents endorsed a variety of practices to assess clients from diverse cultural and linguistic backgrounds. The Weschler scales were the most frequently used neuropsychological instrument which potentially raises concerns about the extent to which a client's linguistic ability and cultural context are considered in assessment. These findings can encourage neuropsychologists to compare and re-evaluate their methods of assessing diverse individuals

The challenges of working across language and culture were identified as being equally prominent but some of the greater issues included: a lack of appropriate neuropsychological tests and norms, difficulties in using interpreters, a lack of training and diversity in the profession and the interference of cultural factors in assessment. Interestingly, perceived barriers to developing cross-cultural competence related to a lack of exposure to and opportunities to work with clients from BME and EAL populations. The findings also showed that cultural and language issues are separable and that cultural issues were more prominent for respondents than language issues. Overall, the quantitative data supported findings from the qualitative data.

Respondents identified that the profession needs to address each of these challenges in order to develop cross-cultural and cross-linguistic neuropsychology. Wider literature has shown that these objectives are imperative for increasing cultural awareness and competence. It was recommended for research to focus on the impact of different variables on neuropsychological performance in BME clients and developing a better understanding of the clinical needs of people from minority groups.

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APPENDICES

Appendix A: Literature Search

The following search terms: ‘neuropsychology’, ‘neuropsychologist’, ‘ethnic’, ‘culture’, ‘language’, ‘cross-cultural neuropsychology’, ‘cross-linguistic neuropsychology’ were entered into EBSCO, PsychINFO, PsychArticles, Science Direct and Google Scholar. Publications from the British Psychological Society (BPS) were examined. Modifiers ‘AND’ and ‘OR’ were applied to the search terms. Limitations were set for English language.

The search strategy produced 6,213 results. Duplicates were eliminated and available abstracts were reviewed for suitable themes. Where abstracts were inadequate or not provided, full article reviews were explored for suitability. All journal articles that seemed relevant to the research area were included and accepted articles were published prior to 2018. The reference lists of the relevant articles retrieved were also analysed and citations of those papers. In total, three studies were included for review

Appendix B: Ethical Approval

School of Psychology Research Ethics Committee

NOTICE OF ETHICS REVIEW DECISION

For research involving human participants
BSc/MSc/MA/Professional Doctorates in Clinical, Counselling and Educational Psychology

REVIEWER: Rachel Tribe

SUPERVISOR: **Matthew Jones Chesters**

STUDENT: Zenab Baber

Course: Professional Doctorate in Clinical Psychology

Title of proposed study: TBC

DECISION OPTIONS:

1. **APPROVED:** Ethics approval for the above named research study has been granted from the date of approval (see end of this notice) to the date it is submitted for assessment/examination.

2. **APPROVED, BUT MINOR AMENDMENTS ARE REQUIRED BEFORE THE RESEARCH COMMENCES** (see Minor Amendments box below)**:** In this circumstance, re-submission of an ethics application is not required but the student must confirm with their supervisor that all minor amendments have been made before the research commences. Students are to do this by filling in the confirmation box below when all amendments have been attended to and emailing a copy of this decision notice to her/his supervisor for their records. The supervisor will then forward the student's confirmation to the School for its records.

3. **NOT APPROVED, MAJOR AMENDMENTS AND RE-SUBMISSION REQUIRED** (see Major Amendments box below)**:** In this circumstance, a revised ethics

application must be submitted and approved before any research takes place. The revised application will be reviewed by the same reviewer. If in doubt, students should ask their supervisor for support in revising their ethics application.

DECISION ON THE ABOVE-NAMED PROPOSED RESEARCH STUDY

(Please indicate the decision according to one of the 3 options above)

2

Minor amendments required *(for reviewer)*:

A fascinating and important study. I think the trainee should discuss the number of questions with their supervisor, as there seem to be rather a lot and this might influence people's desire to respond. It may be worth conducting a pilot and seeing how long it takes to complete. The supervisor is an expert in neuropsychology so will know better than me, what the options are around this. A very minor point, is that there is a new BPS code of ethics which came out in 2018, the one that is listed on the UEL form has recently been superseded.

Major amendments required *(for reviewer):*

Confirmation of making the above minor amendments *(for students)*:

I have noted and made all the required minor amendments, as stated above, before starting my research and collecting data.

Student's name *(Typed name to act as signature): Zenab Baber*

Student number: u1440181

Date: 18/07/2018

(Please submit a copy of this decision letter to your supervisor with this box completed, if minor amendments to your ethics application are required)

ASSESSMENT OF RISK TO RESEACHER *(for reviewer)*

Has an adequate risk assessment been offered in the application form?

YES / NO

If the proposed research could expose the researcher to any of kind of emotional, physical or health and safety hazard? Please rate the degree of risk:

☐ HIGH

Please do not approve a high risk application and refer to the Chair of Ethics. Travel to countries/provinces/areas deemed to be high risk should not be permitted and an application not approved on this basis. If unsure please refer to the Chair of Ethics.

☐ MEDIUM (Please approve but with appropriate recommendations)

☒ LOW

Reviewer comments in relation to researcher risk (if any).

Reviewer *(Typed name to act as signature)*: Prof R Tribe

Date: 17.6.18

This reviewer has assessed the ethics application for the named research study on behalf of the School of Psychology Research Ethics Committee

RESEARCHER PLEASE NOTE:

For the researcher and participants involved in the above named study to be covered by UEL's Insurance, prior ethics approval from the School of Psychology (acting on behalf of the UEL Research Ethics Committee), and confirmation from students where minor amendments were required, must be obtained before any research takes place.

For a copy of UELs Personal Accident & Travel Insurance Policy, please see the Ethics Folder in the Psychology Noticeboard

Appendix C: Participant information sheet

UNIVERSITY OF EAST LONDON
School of Psychology
Stratford Campus
Water Lane
London E15 4LZ

Project Title
Clinical neuropsychologists' experience of working with clients from linguistically and culturally diverse backgrounds.

Principal Investigator:
Zenab Baber, u1440181@uel.ac.uk

Consent to Participate in a Research Study
The purpose of this page is to provide you with the information that you need to consider in deciding whether to participate in this online study. This study is being conducted as part of my Doctoral Thesis at the University of East London.

Project Description
The aim of this research is to understand the experiences of neuropsychologists working with people from diverse linguistic and cultural backgrounds. The goal is to advance our understanding of current practice and issues within cross-cultural clinical neuropsychology in the UK. This study involves answering questions about yourself and your neuropsychological practice. The completion of this survey should take no more than 15 minutes. The finished research will be in the form of an academic thesis. If you have any questions, please contact the researcher using the details provided above.

Confidentiality of the Data
Confidentiality will be ensured; all personal and questionnaire data will be anonymous and only identifiable by a unique participant code. Once the online study has been completed, all the data will be downloaded and stored on a password protected computer. This can only be accessed by the research team, for 10 years, in line with Research Councils UK (RCUK) guidance, after which data will be destroyed and all files deleted. Group data will be used for publication and/or dissemination, but no individual data will be identifiable.

Online data protection
The online version of this questionnaire has been constructed as an anonymous survey whereby no emails, IP addresses and/or geolocation data will be identified in the responses. HTTPS survey links (also known as secure survey links) have been used, giving Secure Sockets Layer (SSL) Encryption while a questionnaire is being completed. During the study, data that is collected online will be stored on an EU-based server and will be subject to EU Data Protection Acts.

Disclaimer
You are not obliged to take part in this study and are free to withdraw at any time during the study. If you chose to withdraw your questionnaire data after returning or submitting it, simply email the researcher providing them with your participant number (shown in the next page) requesting to withdraw your data from the study. Should you choose to withdraw from the study you may do so without disadvantage to yourself and without any obligation to give a reason.

If you have any questions or concerns about how the study has been conducted, please contact my supervisor: Dr Matthew Jones Chesters, School of Psychology, University of East London, Water Lane, London E15 4LZ. Tel: 020 8223 4603. Email: m.h.jones-chesters@uel.ac.uk.

Or contact the chair of the School of Psychology Research Ethics Sub-committee: Dr Mary Spiller, School of Psychology, University of East London, Water Lane, London E15 4LZ. Tel: 020 8223 4004. Email: m.j.spiller@uel.ac.uk.

Appendix D: Participant consent page

Consent to participate in a research study

Neuropsychologists' experiences of working with clients from linguistically and culturally diverse backgrounds.

- I have read the information above relating to the above research study. The nature and purposes of the research have been outlined.
- I understand what is being proposed, and the procedures in which I will be involved have been explained.
- I understand that my involvement in this study, and particular data from this research. will remain strictly confidential.
- I understand that I have the right to withdraw from the study at any time without disadvantage to myself and without being obliged to give any reason.

- ○ I hereby freely and fully consent to participate in the study which has been fully explained to me
- ○ I do not wish to participate in the study

Appendix E: Participant debrief page

Debrief page

Thank you for participating in this study.

The aim of this study is to examine current issues within cross-language and cross-cultural neuropsychology; and to gain an understanding of how clinicians' approach neuropsychological assessments with people from diverse linguistic and cultural groups.

Contact details
If you have any questions about the study, please contact the researcher: Zenab Baber, email: u1440181@uel.ac.uk.

Alternatively, if you have any concerns about how the study has been conducted, please contact the researcher's supervisor: Dr Matthew Jones Chesters, School of Psychology, University of East London, Water Lane, London E15 4LZ. Email: m.h.jones-chesters@uel.ac.uk.

Or contact the Chair of the School of Psychology Research Ethics Sub-committee:
Dr. Mary Spiller, School of Psychology, University of East London, Water Lane, London E15 4LZ. Email: m.j.spiller@uel.ac.uk.

Appendix F: Survey Questionnaire

Questions About You

We will use the answers in this section to describe the survey participants, and to ensure that a range of perspectives are represented.

Q1. What is your age?

- 18-24 years
- 25-34 years
- 35-44 years
- 45-54 years
- 55-64 years
- 65-74 years
- 75 years or older

Q2. What is your sex/gender?

- Male
- Female
- Other
- Prefer not to say

Q3. What is your ethnic group?

- Asian Indian
- Asian Bangladeshi
- Asian Pakistani
- Asian Other
- Black African
- Black Caribbean
- Black Other
- Chinese
- Irish
- Middle Eastern/North African
- Mixed White & Asian
- Mixed White & Black African
- Mixed White & Black Caribbean
- Mixed Other
- White English
- White Scottish
- White Welsh
- White Other
- Prefer not to say

- Other

Q4. If other, please state here:

Q5. Where are you located?

- East of England
- East Midlands
- London including Greater London
- North East and Cumbria
- Northern Ireland
- North West
- Scotland
- South East
- South West
- Cymru Wales
- West Midlands
- Yorkshire and the Humber
- UK Regions
- East of England
- Other

Q6. If other, please state here:

Q7. Is English your primary language?

- Yes
- No

Q8. What is your primary language(s)?

Q9. In what other language(s) are you also proficient (if any)?

Questions about your neuropsychology work/roles

Q10. Where do you currently work? (Please check all that apply)

- NHS
- Private Healthcare Provider
- Social Services
- Charitable or Voluntary Sector Provider

- Independent or Private Practice
- Employee Assistance Programme
- Higher Education Institution
- Research centre, institute or organisation
- Other

Q11. If other, please state here:

Q12. What is your main role?

- Counselling psychologist
- Counselling psychologist in training
- Clinical psychologist
- Clinical psychologist in training
- Educational psychologist
- Educational psychologist in training
- Clinical neuropsychologist
- Consultant Neuropsychologist
- Research Neuropsychologist
- Other

Q13. If other, please state here:

Q14. Which of these best describes your post? (or equivalent if in independent practice)

- NHS Band 7 (or equivalent; post qualification)
- NHS Band 8a (or equivalent; specialist or senior)
- NHS Band 8b (or equivalent; principle or highly specialist)
- NHS Band 8c (or equivalent; consultant, team leader)
- NHS Band 8d (or equivalent; consultant, service leader)
- NHS Band 9 (or equivalent; consultant, senior manager)

Q15. What is your main specialty?

- Adult Mental Health Care
- Adult Physical Health or Liaison

- Adult Acute Neuropsychology
- Adult Neuropsychology Rehabilitation
- Children & Families Mental Health
- Child Physical Health or Liaison
- Child Acute or Paediatric Neuropsychology
- Child Neuropsychology Rehabilitation
- Services for people with learning difficulties
- Older Adult Mental Health Care
- Older Adult Physical Health or Liaison
- Memory Clinic or Dementia Services
- Other

Q16. If other, please state here:

Q17: **With what patient groups or neuropsychological presentations do you work most frequently?** (Please check all that apply)

- Adult Cognitive Disorders
- Acute Neurology
- Acute Stroke and ABI
- Stroke and ABI Rehabilitation
- Head Injury: Moderate and Severe
- Head Injury: Mild (mTBI)
- HIV
- Child Development or Disability (e.g., CDC)
- ADHD
- Specific Learning Disorder
- Autism & Autistic Spectrum Presentations
- Psychosis
- Memory clinic and dementia diagnosis
- Other

Q18. If other, please state here:

Q19. **What training have you had in psychology and neuropsychology?** (Please check all that apply)

- Pre-qualification MSc in neuropsychology or neuroscience (or equivalent)
- Doctorate in counselling psychology (or equivalent)
- Doctorate in clinical psychology (or equivalent)
- Doctorate in educational psychology (or equivalent)
- Post-qualification diploma/certificate in clinical neuropsychology (or equivalent)
- Post-qualification MSc in clinical or applied neuropsychology (or equivalent)
- Post-qualification BPS Division of Neuropsychology QiCN (PFM)
- Research PhD in neuropsychology or a related area
- Other

Q20. If other, please state here:

Q21. How many years have you worked in clinical neuropsychology?

- 1 year
- 2 years
- 3 years
- 4 years
- 5 years
- 6 years
- 7 years
- 8 years
- 9 years
- 10+ years

Working across language and across culture

Q22: Which of these issues do you feel represent a challenge to working across language or culture?

- Clients who have limited facility in the English language
- Clients who have no facility in the English language
- Determining a client's proficiency in the English language
- Clients from non-Western/non-European cultural backgrounds

- Determining a client's exposure/acculturation to Western/European culture
- Clients with limited formal education
- Determining a client's experience of formal education
- Having tests and procedures available in a client's preferred language
- Administering tests and procedures via an interpreter in a client's preferred language
- Administering tests and procedures myself in a language other than English
- Administering tests and procedures via an interpreter appropriate to a client's cultural background
- Having tests and procedures available which are appropriate to a client's cultural background
- Having normative data available for a test matching a client's cultural background
- Interpreting scores on tests administered in a client's preferred language
- Other

Q23. If other, please state here:

Q24. **What tests and instruments do you use when working across language and culture?** (Please check all that apply)

- Bespoke or local tests and norms
- Translated or culturally-adapted versions of neuropsychological tests
- Subtests of Weschler Adult Intelligence Scales
- Subtests of Weschler Intelligence Scales for Children
- Subtests of Weschler Pre-school and Primary Intelligence Scales
- Subtests of Weschler Memory Scales
- Weschler Non-verbal Scales
- DAS Naglieri
- CTONI
- Leiter-3
- Beta 3
- Other

Q25. If other, please state here:

Q26: **Approximately, what proportion of your work involves clients with no or limited facility in English?**

- 10%
- 20%
- 30%

- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%

Q27: **Approximately, what proportion of your work involves clients from non-Western/European cultures?**

- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%

Your chance to say more about these issues.

Q28. What training have you found useful in working across language or culture? (Please state)

Q29. How do you take language into account when planning or undertaking neuropsychological assessment? (Please state)

Q30. How do you take cultural factors into account when planning or undertaking neuropsychological assessment? (Please state)

Q31. What do you feel are the main challenges to cross-language and cross-cultural neuropsychology practice in the UK? (Please state)

Q32. What suggestions do you have for developing cross-language and cross-cultural neuropsychology practice in the UK? (Please state)

Q33. How competent do you feel in administering neuropsychological assessments with clients from diverse linguistic backgrounds?

- Extremely competent
- Moderately competent
- Slightly competent
- Neither competent nor noncompetent
- Slightly noncompetent
- Moderately noncompetent
- Extremely noncompetent

Appendix G: SPSS Output

What is your age?

Statistics

What is your age?

N	Valid	77
	Missing	1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24 years	1	1.3	1.3	1.3
	25-34 years	19	24.4	24.7	26.0
	35-44 years	31	39.7	40.3	66.2
	45-54 years	18	23.1	23.4	89.6
	55-64 years	8	10.3	10.4	100.0
	Total	77	98.7	100.0	
Missing	System	1	1.3		
Total		78	100.0		

What is your sex/gender?

Statistics

What is your sex/gender?

N	Valid	78
	Missing	0

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	16	20.5	20.5	20.5
	Female	62	79.5	79.5	100.0
	Total	78	100.0	100.0	

What is your ethnic group?

Statistics

What is your ethnic group?

N	Valid	78

	Missing	0

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Asian Indian	3	3.8	3.8	3.8
	Asian Other	3	3.8	3.8	7.7
	Black African	1	1.3	1.3	9.0
	Irish	5	6.4	6.4	15.4
	Mixed White & Asian	1	1.3	1.3	16.7
	White English	47	60.3	60.3	76.9
	White Scottish	3	3.8	3.8	80.8
	White Welsh	2	2.6	2.6	83.3
	White Other	13	16.7	16.7	100.0
	Total	78	100.0	100.0	

Where are you located?

Statistics

N	Valid	78
	Missing	0

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	East of England	2	2.6	2.6	2.6
	East Midlands	1	1.3	1.3	3.8
	London including Greater London	35	44.9	44.9	48.7
	North East and Cumbria	1	1.3	1.3	50.0
	Northern Ireland	1	1.3	1.3	51.3
	North West	5	6.4	6.4	57.7
	South East	18	23.1	23.1	80.8
	South West	5	6.4	6.4	87.2
	Cymru Wales	4	5.1	5.1	92.3
	West Midlands	1	1.3	1.3	93.6
	Yorkshire and the Humber	2	2.6	2.6	96.2
	UK Regions	2	2.6	2.6	98.7
	France	1	1.3	1.3	100.0
	Total	78	100.0	100.0	

Is English your primary language?

Statistics

		English primary language?	Other language(s) text
N	Valid	78	78
	Missing	0	0

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	76	97.4	97.4	97.4
	No	2	2.6	2.6	100.0
	Total	78	100.0	100.0	

In what other language(s) are you also proficient (if any)?

Other language(s) text

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		62	79.5	79.5	79.5
	Dutch, German, French	1	1.3	1.3	80.8
	French	3	3.8	3.8	84.6
	French (mal)	1	1.3	1.3	85.9
	French, Spanish	1	1.3	1.3	87.2
	Hindi	1	1.3	1.3	88.5
	Portuguese, French	1	1.3	1.3	89.7
	Punjabi	1	1.3	1.3	91.0
	Spanish	2	2.6	2.6	93.6
	Spanish, Danish	1	1.3	1.3	94.9
	Spanish, Katalan	1	1.3	1.3	96.2
	Swedish	1	1.3	1.3	97.4
	Urdu and Hindi	1	1.3	1.3	98.7
	Welsh	1	1.3	1.3	100.0
	Total	78	100.0	100.0	

Where do you currently work?

Statistics

	N	
	Valid	Missing
Sector: NHS	64	14
Sector: Private Healthcare Provider	9	69
Sector: Social Services	0	78
Sector: Charitable or Voluntary Sector Provider	2	76
Sector: Independent or Private Practice	34	44
Sector: Employee Assistance Programme	0	78
Sector: Higher Education Institution	6	72
Sector: Research centre, institute or organisation	3	75

What is your main role?

Post or Role

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Clinical psychologist in training	2	2.6	2.6	2.6
	Clinical psychologist	36	46.2	46.2	48.7
	Clinical neuropsychologist	15	19.2	19.2	67.9
	Consultant Neuropsychologist	21	26.9	26.9	94.9
	Educational psychologist	2	2.6	2.6	97.4
	Research Neuropsychologist	2	2.6	2.6	100.0
	Total	78	100.0	100.0	

Which of these best describes your post?

Post band (or equivalent)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NHS Band 7 (or equivalent; post qualification)	9	11.5	15.8	15.8
	NHS Band 8a (or equivalent; specialist or senior)	18	23.1	31.6	47.4
	NHS Band 8b (or equivalent; principle or highly specialist)	9	11.5	15.8	63.2
	NHS Band 8c (or equivalent; consultant or team leader)	12	15.4	21.1	84.2
	NHS Band 8d (or equivalent; consultant or service leader	7	9.0	12.3	96.5
	NHS Band 9 (or equivalent; consultant or senior manager)	2	2.6	3.5	100.0
	Total	57	73.1	100.0	
Missing	System	21	26.9		
Total		78	100.0		

What is your main specialty?

Statistics

	N	
	Valid	Missing
Specialty: Adult Mental Health Care	8	70
Specialty: Adult Physical Health or Liaison	6	72
Specialty: Adult Acute Neuropsychology	21	57
Specialty: Adult Neuropsychology Rehabilitation	46	32
Specialty: Children & Families Mental Health	2	76
Specialty: Child Physical Health or Liaison	1	77

Specialty: Child Acute or Paediatric Neuropsychology	4	74
Specialty: Child Neuropsychology Rehabilitation	3	75
Specialty: Services for People with Learning Difficulties	2	76
Specialty: Older Adult Mental Health Care	12	66
Specialty: Older Adult Physical Health or Liaison	1	77
Specialty: Memory Clinic or Dementia Services	19	59
Specialty: Medico-legal	0	78
Specialty: Neuropsychiatry	1	77
Specialty: Epilepsy	2	76

Specialty: Adult Mental Health Care

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Adult Mental Health Care	8	10.3	100.0	100.0
Missing	System	70	89.7		
Total		78	100.0		

Specialty: Adult Physical Health or Liaison

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Adult Physical Health or Liaison	6	7.7	100.0	100.0
Missing	System	72	92.3		
Total		78	100.0		

Specialty: Adult Acute Neuropsychology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Adult Acute Neuropsychology	21	26.9	100.0	100.0
Missing	System	57	73.1		
Total		78	100.0		

Specialty: Adult Neuropsychology Rehabilitation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Adult Neuropsychology Rehabilitation	46	59.0	100.0	100.0
Missing	System	32	41.0		
Total		78	100.0		

Specialty: Children & Families Mental Health

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Children & Families Mental Health	2	2.6	100.0	100.0
Missing	System	76	97.4		
Total		78	100.0		

Specialty: Child Physical Health or Liaison

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Child Physical Health or Liaison	1	1.3	100.0	100.0
Missing	System	77	98.7		
Total		78	100.0		

Specialty: Child Acute or Paediatric Neuropsychology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Child Acute or Paediatric Neuropsychology	4	5.1	100.0	100.0
Missing	System	74	94.9		
Total		78	100.0		

Specialty: Child Neuropsychology Rehabilitation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Child Neuropsychology Rehabilitation	3	3.8	100.0	100.0
Missing	System	75	96.2		
Total		78	100.0		

Specialty: Services for People with Learning Difficulties

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Services for People with Learning Difficulties	2	2.6	100.0	100.0
Missing	System	76	97.4		
Total		78	100.0		

Specialty: Older Adult Mental Health Care

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Older Adult Mental Health Care	12	15.4	100.0	100.0
Missing	System	66	84.6		
Total		78	100.0		

Specialty: Older Adult Physical Health or Liaison

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Older Adult Physical Health or Liaison	1	1.3	100.0	100.0
Missing	System	77	98.7		
Total		78	100.0		

Specialty: Memory Clinic or Dementia Services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Memory Clinic or Dementia Services	19	24.4	100.0	100.0
Missing	System	59	75.6		
Total		78	100.0		

Specialty: Medico-legal

		Frequency	Percent
Missing	System	78	100.0

Specialty: Neuropsychiatry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.3	100.0	100.0
Missing	System	77	98.7		
Total		78	100.0		

Specialty: Epilepsy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Epilepsy	2	2.6	100.0	100.0
Missing	System	76	97.4		
Total		78	100.0		

With what patient groups or neuropsychological presentations do you work most frequently?

Statistics

	N	
	Valid	Missing
Client: Adult Cognitive Disorders	49	29
Client: Acute Neurology	22	56
Client: Stroke and ABI Rehabilitation	41	37
Client: Acute Stroke and ABI	29	49
Client: Head Injury: Moderate and Severe	47	31
Client: Head Injury: Mild (mTBI)	41	37
Client: HIV	8	70
Client: Child Development or Disability (e.g., CDC)	6	72
Client: ADHD	3	75
Client: Specific Learning Disorder	5	73
Client: Autism & Autistic Spectrum Presentations	5	73
Client: Psychosis	3	75
Client: Memory Clinic & Dementia Diagnosis	32	46

Client: Functional Disorders and Mental Health	5	73
Client: Health & Oncology	3	75
Client: Epilepsy	4	74

Client: Adult Cognitive Disorders

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Adult Cognitive Disorders	49	62.8	100.0	100.0
Missing	System	29	37.2		
Total		78	100.0		

Client: Acute Neurology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Acute Neurology	22	28.2	100.0	100.0
Missing	System	56	71.8		
Total		78	100.0		

Client: Stroke and ABI Rehabilitation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Stroke and ABI Rehabilitation	41	52.6	100.0	100.0
Missing	System	37	47.4		
Total		78	100.0		

Client: Acute Stroke and ABI

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Acute Stroke and ABI	29	37.2	100.0	100.0
Missing	System	49	62.8		
Total		78	100.0		

Client: Head Injury: Moderate and Severe

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Head Injury: Moderate and Severe	47	60.3	100.0	100.0
Missing	System	31	39.7		
Total		78	100.0		

Client: Head Injury: Mild (mTBI)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Head Injury: Mild (mTBI)	41	52.6	100.0	100.0
Missing	System	37	47.4		
Total		78	100.0		

Client: HIV

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	HIV	8	10.3	100.0	100.0
Missing	System	70	89.7		
Total		78	100.0		

Client: Child Development or Disability (e.g., CDC)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Child Development or Disability (e.g., CDC)	6	7.7	100.0	100.0
Missing	System	72	92.3		
Total		78	100.0		

Client: ADHD

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ADHD	3	3.8	100.0	100.0
Missing	System	75	96.2		
Total		78	100.0		

Client: Specific Learning Disorder

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Specific Learning Disorder	5	6.4	100.0	100.0
Missing	System	73	93.6		
Total		78	100.0		

Client: Autism & Autistic Spectrum Presentations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Autism & Autistic Spectrum Presentations	5	6.4	100.0	100.0
Missing	System	73	93.6		

Total		78	100.0		

Client: Psychosis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Psychosis	3	3.8	100.0	100.0
Missing	System	75	96.2		
Total		78	100.0		

Client: Memory Clinic & Dementia Diagnosis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Memory Clinic & Dementia Diagnosis	32	41.0	100.0	100.0
Missing	System	46	59.0		
Total		78	100.0		

Client: Functional Disorders and Mental Health

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Functional Disorders & Mental Health	5	6.4	100.0	100.0
Missing	System	73	93.6		
Total		78	100.0		

Client: Health & Oncology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Health & Oncology	3	3.8	100.0	100.0
Missing	System	75	96.2		
Total		78	100.0		

Client: Epilepsy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Epilepsy	4	5.1	100.0	100.0
Missing	System	74	94.9		
Total		78	100.0		

What training have you had in psychology and neuropsychology?

Statistics

	N	
	Valid	Missing
Training: Pre-qualification MSc in neuropsychology or neurosciences (or equivalent)	14	64
Training: Doctorate in counselling psychology (or equivalent)	0	78
Training: Doctorate in clinical psychology (or equivalent)	71	7
Training: Doctorate in educational psychology (or equivalent)	0	78
Training: Post-qualification diploma/certificate in clinical neuropsychology (or equivalent)	31	47
Training: Post-qualification MSc in clinical or applied neuropsychology (or equivalent)	8	70
Training: Post-qualification BPS Division of Neuropsychology QiCN (PFM)	18	60
Training: Research PhD in neuropsychology or a related area	13	65
Training: post-qualification CPD	2	76

Training: Pre-qualification MSc in neuropsychology or neurosciences (or equivalent)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Pre-qualification MSc in neuropsychology or neurosciences (or equivalent)	14	17.9	100.0	100.0

Missing	System	64	82.1		
Total		78	100.0		

Training: Doctorate in counselling psychology (or equivalent)

		Frequency	Percent
Missing	System	78	100.0

Training: Doctorate in clinical psychology (or equivalent)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Doctorate in clinical psychology (or equivalent)	71	91.0	100.0	100.0
Missing	System	7	9.0		
Total		78	100.0		

Training: Doctorate in educational psychology (or equivalent)

		Frequency	Percent
Missing	System	78	100.0

Training: Post-qualification diploma/certificate in clinical neuropsychology (or equivalent)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Post-qualification diploma/certificate in clinical neuropsychology (or equivalent)	31	39.7	100.0	100.0
Missing	System	47	60.3		
Total		78	100.0		

Training: Post-qualification MSc in clinical or applied neuropsychology (or equivalent)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Post-qualification MSc in clinical or applied neuropsychology (or equivalent)	8	10.3	100.0	100.0
Missing	System	70	89.7		
Total		78	100.0		

Training: Post-qualification BPS Division of Neuropsychology QiCN (PFM)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Post-qualification BPS Division of Neuropsychology QiCN (PFM)	18	23.1	100.0	100.0
Missing	System	60	76.9		
Total		78	100.0		

Training: Research PhD in neuropsychology or a related area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Research PhD in neuropsychology or a related area	13	16.7	100.0	100.0
Missing	System	65	83.3		
Total		78	100.0		

Training: post-qualification CPD

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Post-qualification courses/CPD	2	2.6	100.0	100.0
Missing	System	76	97.4		
Total		78	100.0		

How many years have you worked in clinical neuropsychology?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 year	6	7.7	7.7	7.7
	2 years	6	7.7	7.7	15.4
	3 years	3	3.8	3.8	19.2
	4 years	5	6.4	6.4	25.6
	5 years	3	3.8	3.8	29.5
	6 years	2	2.6	2.6	32.1
	7 years	1	1.3	1.3	33.3
	8 years	2	2.6	2.6	35.9
	9 years	5	6.4	6.4	42.3
	10 years+	45	57.7	57.7	100.0
	Total	78	100.0	100.0	

Which of these issues do you feel represent a challenge to working across language or culture?

	N	
	Valid	Missing
Issues: Clients who have limited facility in the English language	61	17
Issues: Clients who have no facility in the English language	62	16
Issues: Determining a client's proficiency in the English language	39	39
Issues: Clients from non-Western/non-European cultural backgrounds	52	26
Issues: Determining a client's exposure/acculturation to Western/European culture	40	38
Issues: Clients with limited formal education	50	28
Issues: Determining a client's experience of formal education	31	47

Issues: Having tests and procedures available in a client's preferred language	61	17
Issues: Administering tests and procedures via an interpreter in a client's preferred language	67	11
Issues: Administering tests and procedures myself in a language other than English	24	54
Issues: Administering tests and procedures via an interpreter appropriate to a client's cultural background	61	17
Issues: Having tests and procedures available which are appropriate to a client's cultural background	66	12
Issues: Having normative data available for a test matching a client's cultural background	68	10
Issues: Interpreting scores on tests administered in a client's preferred language	57	21

What tests and instruments do you use when working across language and culture?

	N	
	Valid	Missing
Tests: Bespoke or local tests and norms	32	46
Tests: Translated or culturally-adapted versions of neuropsychological tests	44	34
Tests: Subtests of Weschler Adult Intelligence Scales	65	13
Tests: Subtests of Weschler Intelligence Scales for Children	7	71

Tests: Subtests of Weschler Pre-school and Primary Intelligence Scales	6	72
Tests: Subtests of Weschler Memory Scales	43	35
Tests: Weschler Non-verbal Scales	28	50
Tests: DAS Naglieri	0	78
Tests: CTONI	1	77
Tests: Leiter-3	3	75
Tests: Beta 3	0	78
Tests: Other	26	52
Tests: text	78	0

Approximately, what proportion of your work involves clients with no or limited facility in English?

Valid	10%	42	53.8	56.0	56.0
	20%	6	7.7	8.0	64.0
	30%	12	15.4	16.0	80.0
	40%	6	7.7	8.0	88.0
	50%	6	7.7	8.0	96.0
	60%	1	1.3	1.3	97.3
	70%	1	1.3	1.3	98.7
	100%	1	1.3	1.3	100.0
	Total	75	96.2	100.0	
Missing	System	3	3.8		
Total		78	100.0		

Proportion of work with clients from non-Western/European cultures

		Frequency	Pcent	Valid Percent	Cumulative Percent
Valid	10%	35	44.9	46.7	46.7
	20%	8	10.3	10.7	57.3
	30%	3	3.8	4.0	61.3
	40%	8	10.3	10.7	72.0
	50%	11	14.1	14.7	86.7
	60%	7	9.0	9.3	96.0
	70%	2	2.6	2.7	98.7
	80%	1	1.3	1.3	100.0
	Total	75	96.2	100.0	

Missing	System	3	3.8		
Total		78	100.0		

How competent do you feel in administering neuropsychological assessments with clients from diverse linguistic backgrounds?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely competent	6	7.7	9.1	9.1
	Moderately competent	23	29.5	34.8	43.9
	Slightly competent	16	20.5	24.2	68.2
	Neither competent nor noncompetent	7	9.0	10.6	78.8
	Slightly noncompetent	8	10.3	12.1	90.9
	Moderately noncompetent	6	7.7	9.1	100.0
	Total	66	84.6	100.0	
Missing	System	12	15.4		
Total		78	100.0		

Appendix H: Identification of potential categories

How do you take language into account when planning or undertaking neuropsychological assessment?

Responses	Codes	Potential categories
The use of tests that are less reliant on language.	B, C,	Neuropsychological tests and norms Non-verbal tests
As much as possible I try and take cultural differences and whether a test has been normed for that population into account, however I don't feel that tests used are always 100% appropriate due to time or resource issues (and I reflect on that in my interpretation in reports).	B, E, F	Neuropsychological tests and norms Incorporating cultural differences Challenges in assessment
Consider the use of specific tests if English not first language. If I go ahead and assess make sure this is accounted for in interpretation	B, G	Neuropsychological tests and norms Careful interpretation
Attempting to evaluate level of receptive and expressive language ability	I	Assessing language ability/ proficiency
Consideration of using more non-verbal tasks, use of interpreters, interpretation of scores considering whether English is first language or not	B, C, G, H	Neuropsychological tests and norms Non-verbal tests Interpreters Careful interpretation
I have used co-work with colleagues to get a good picture of a person's functional cognitive ability and in the case of someone with limited language and a non-Western cultural background this may involve joint neuropsychological assessment and Occupational therapy functional assessment to get a fuller picture.	J, K	Integrative approach Joint assessment
I ask about specific dialect and ensure there is a suitable interpreter available	I, G	Assessing language ability/ proficiency

		Interpreter
Focus on non verbal tasks. Complete some verbal tasks with interpreter or in English if appropriate. But use verbal tests as indications of intact function. Poor performance is not necessarily helpful.	B, C, L, G	Neuropsychological tests and norms Non-verbal tests Verbal tests Interpreter
Seek as much info from referrer about clients first / preferred language, inc details re proficiency, occupational and educational history, arrange interpreter	J, K,	Integrative approach Clinical interview
Allowing extra time for explanations, working with interpreter etc. - Not overly relying on norms not relevant to the clients' linguistic background	L, G, H	Flexibility/making adjustments Interpreter Special approaches
I work frequently with individuals who are non-verbal and therefore consider non-verbal communication as a key element of my assessment. When an individual has proficiency in another language. I will request information from multiple sources (e.g. family, teachers) to establish level of language proficiency in their first language. when working with an interpreter I will plan with them before the assessment, discuss any elements of the assessment that may be 'culturally challenging' and adapt my assessment accordingly. This process is always described in my report.	D, J, K, L, I, G, L, Y	Non-verbal communication Information from multiple sources Assessing language ability/proficiency Interpreters Preparation Flexibility/making adjustments
Assessing language as even if client is English speaking, they may have language impairments secondary to ABI or other neurological condition. If a client does not speak English as a first language or even if they do, what is their exposure to western culture? Clients who fit in this category are	I, M, N, R, G	Assessing language ability/proficiency Feeling deskilled Less opportunities for work Pressured work setting Interpreters (challenges)

very small in the geographical area I work in so when they are referred, I can feel very deskilled in this type of assessment. It is often difficult in pressured NHS setting to have time to adequately find out information, plan sessions or assessments etc. It is often difficult getting an interpreter in the clients chosen language or dialect anyway.		
Occupational role, qualifications, country of education, reading ability, SALT liaison	K	Clinical interview

Appendix I: Final categories and subcategories from content analysis

Questions	Categories	Subcategories
Q1. What training have you found useful in working across language or culture?	Formal training	
	Informal learning	
	None or limited training.	
Q2. How do you take language into account when planning or undertaking neuropsychological assessment?	Neuropsychological tests and norms	Use of an interpreter
	Assessing language ability	
	Integrative approach	
	Challenges in assessment	
Q3. How do you take cultural factors into account when planning or undertaking neuropsychological assessment?	Awareness of culture	Exploration of a client's cultural context
		Learning about culture
	Neuropsychological tests and norms	Limitations of neuropsychological tests and norms
		Interpreting with caution
	Comprehensive clinical interview	
Q4. What do you feel are the main challenges to cross-language and cross-cultural neuropsychology practice in the UK?	Limitations of neuropsychological tests and norms	A lack of appropriate norms and tests
		A lack of validity and reliability of tests
	A lack of awareness on the limitations of tests	
	Difficulties in using interpreters	
	Issues within the profession	A lack of diversity in the profession
		Limited teaching and training
	Cross-cultural challenges	Cultural variation in clinical population
		Limitations of western-based model
		Difficulties in the process of testing

Q5. What suggestions do you have for developing cross-language and cross-cultural neuropsychology practice in the UK?	Teaching and training	
	Development of neuropsychological norms and tests	
	Changes in the profession	Increasing diversity
		Sharing information and research
		Involvement from professional bodies
	Developing awareness of culture and language	

Appendix J: Identification of potential themes

Initial theme	Grouped codes
Assessing language	- Awareness of cultural bias - Assessing language - Exposure/acculturation - Receptive/expressive language - Competence in English - Language proficiency - Aphasia assessment - Specific dialects - Language fluency - Ability to communicate
Use of tests	- Non-verbal tests - Culture-free tests - Use of specific tests - Translated verbal tests - Adapted tests - Limitations of tests - Avoidance of tests - Language versions of tests
Consideration of norms	- Appropriate norms - Norms from other cultures - Discarding norms
Challenges with assessment	- Feeling deskilled - Difficulties in completing assessment - Difficulties with interpreters
Approaches to facilitate testing	- Use of interpreters - Making allowances in assessment - Plan testing - Appropriateness of interpreter - Non-verbal communication - Planning with interpreter
Comprehensive assessment	- MDT work - OT assessment - Comprehensive assessment - Multiple sources of information - Holistic approach - SALT liaison - Background information - Consultation with colleagues - Referral to appropriate professionals
Interpretation and reporting	- Adaptations stated in report - Caution in interpretation - Reporting limitations in report - Qualitative interpretations - Issues of validity and reliability in report - Feedback to client